SPECIAL CONTRACT REQUIREMENTS

The following Special Contract Requirements amend and supplement the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-92, U.S. Department of Transportation, Federal Highway Administration.

Section 101. -- TERMS, FORMAT, AND DEFINITIONS

101.02 Specifications Format. **Delete the third paragraph and substitute the following:**

Division 150 consists of project contract requirements that are applicable to all contracts. Work under Division 150 is paid for directly, according to Subsection 109.05 and the Section ordering the work, when pay item(s) associated with the work are included in the bid schedule. When there is no pay item in the bid schedule, or no pay item related to a specific component of the work, no direct payment is made for the work, or component of the work, as appropriate.

101.04 Definitions. **Add the following:**

Certificate of Compliance - **A signed statement by a person having legal authority to bind a company or supplier to its product. Such certificate shall state that the materials or assemblies furnished fully comply with the requirements of the contract.**

Construction Limits **- The limits along the left and right of the roadway that are intended to be disturbed during normal construction operations. These operations would include clearing and grubbing, slope rounding and minor work to accommodate features in the project. In general, the normal construction limits shall be equivalent to the clearing limits, except when selective clearing may be required to remove such things as hazardous trees or minor clearing for drainage facilitation.**

Lift **- When placing and compacting soils and aggregates, a lift is any single, continuous layer of material which receives, during a single work operation, the same compactive effort throughout. When installing culvert pipe less than or equal to 48-inches (1200 mm) in diameter, the backfill material placed on both sides of the pipe is considered to be contained in the same lift when the material is placed to the same elevation on both sides of the culvert,**

the compactive effort applied to one side of the culvert is the same as that applied to the other, and the compactive effort is applied to both sides of the pipe in a continuous operation.

Slope Stake Limits **- The catch point for the slope stakes at the top of cuts and the bottom (toe) of fills. These theoretical catches are generally included in the plans and are typically drawn on the plan and profile sheets. The designed slope catch points may be adjusted during the construction phase to accommodate such things as slope ratio changes, grade raises, line shifts, and/or drainage modifications.**

Section 103. -- SCOPE OF WORK

103.03 Value Engineering. **Delete the text of the second paragraph and substitute the following:**

Value engineering proposals that delete work without a related enhancement to the project will not be considered.

Add the following Subsection:

103.05 Partnering. **To facilitate this contract, the Government offers to participate in a formal partnership with the Contractor. This partnership draws on the strengths of each organization to identify and achieve reciprocal goals. Partnering strives to resolve problems in a timely, professional, and non-adversarial manner. If problems result in disputes, partnering encourages, but does not require, alternative dispute resolution instead of the formal claim process. The objective is effective and efficient contract performance to achieve a quality project within budget and on schedule.**

Acceptance of this partnering offer by the Contractor is optional and the partnership is bilateral.

If the partnering offer is accepted, mutually agree with the Government on the level of organizational involvement and the need for a professional to facilitate the partnering process. Engage the facilitator and other resources for key Contractor and Government representatives to attend a partnership development and team-building workshop usually between the time of award and the notice to proceed. Hold additional progress meetings upon mutual agreement.

The direct cost of partnering facilities, professional facilitation, copying fees, and other miscellaneous costs directly related to partnering meetings will be shared by the Contractor and Government. Secure and pay for facilities, professional fees, and miscellaneous requirements. Provide invoices to the Government. The Government will reimburse the Contractor for 50 percent of the agreed costs incurred for the partnering process. The Government's share will not exceed $8,000.

Each party is responsible for making and paying for its own travel, lodging, and meal arrangements. The time allowed for completion of the project is not affected by partnering.

Section 104. -- CONTROL OF WORK

104.02 Methods and Equipment. **Delete the title and text and substitute the following:**

Authority of Government Inspectors. **Inspectors are authorized to inspect all work including the preparation, fabrication, or manufacture of material for the project. The inspector is not authorized to alter or waive contract requirements, issue instruction contrary to the contract, act as foreman for the Contractor, or direct the Contractor's operations. The inspector has authority to reject work until the issue can be referred to and decided by the CO.**

Section 105. -- CONTROL OF MATERIAL

105.01 Source of Supply and Quality Requirements. **Add the following:**

Materials containing petroleum-based solvents such as cutback asphalts and traffic paints may be restricted from use by local laws or ordinances in certain geographic areas. Upon presenting proof of such restrictions, alternate materials considered acceptable by the CO may be substituted for the materials specified in the contract.

Section 106. -- ACCEPTANCE OF WORK

106.01 Conformity with Contract Requirements. **Add the following to the second paragraph:**

Where sample/testing procedures make reference to AASHTO, ASTM, or other standards (designated as FLH T), the procedure as modified in the Materials Manual shall govern. Where the specifications make reference to AASHTO Test T 11, "Procedure B - Washing Using a Wetting Agent" shall be the procedure followed.

Add the following:

Reference made to the Materials Manual means the Federal Lands Highway "Field Materials Manual, U.S. Department of Transportation, Federal Highway Administration", Publication No. FHWA-FL-91-002, dated March 1991, revised March 1994, and all amendments and supplements thereto. Copies are available from the Materials Engineer at $60 each. (Federal Highway Administration, Central Federal Lands Highway Division, Materials Branch, P.O. Box 25246, Denver, CO 80225 - Telephone: (303) 236-4394).

106.03 Certification of Compliance. **Insert the following after the first sentence in the last paragraph of this subsection:**

Aggregates and/or aggregate-asphalt mixtures will be sampled and tested for conformance with the Certificate of Compliance a minimum of one time per pay item.

Add the following:

As a minimum, provide materials certificates of compliance according to Table 106-5 and the applicable requirements for each item.

106.04 Measured or Tested Conformance. **Add the following:**

See Table 106-4 for minimum acceptance sampling and testing requirements.

106.05 Statistical Evaluation of Work for Acceptance and Determination of Pay Factor (Value of Work). (b) Acceptance. **Delete the last sentence of the second paragraph and substitute the following:**

If a lot is concluded or terminated with fewer than 5 samples, the samples will be combined with those of an adjacent lot. In the event there is no adjacent lot, the material will be accepted according to Subsection 106.04.

Delete the third paragraph and substitute the following:

If the current pay factor of a lot falls below 0.90, terminate production. The current lot is terminated at this point and the material being evaluated will be accepted as provided in the following paragraphs. After the Contractor has taken effective actions to improve the quality of the production, production may resume and a new lot will begin.

Delete Table 106-3 and substitute the following new Table 106-3:

Table 106 - 3 Material Subject to Statistical Based Acceptance

Section	Material	Quality Characteristic	Category	Test Method	Sampling Frequency	Point of Sampling
301	Aggregate surface, base, and subbase courses	Gradation [1]) Tables 703-2, 3, or 4				
		No. 4 (4.75 mm)	I	AASHTO T 11 and	1 sample per 1,000 ton but	From the windrow or
		No. 40	I	AASHTO T 27	not less than 1 per day	roadbed after processing
		No. 200 (75 µm)	I			
		Other Specified Sieves	II			
		Plasticity Index [2]	I	AASHTO T 90	1 sample per 1,000 ton but not less than 1 per day	
307	Stockpiled aggregate					From the conveyor after crushing & mixing or from the stockpile as determined by the CO[4]
302	Aggregate for treated aggregate courses	Gradation [1]) See Section 301 above	See Section 301 above	AASHTO T 11 and AASHTO T 27	1 sample per 1,000 ton but not less than 1 per day	From the conveyor belt before blending or mixing
401	Hot asphalt concrete pavement	Asphalt Content	I	FLH T 516, FLH T 517, or AASHTO T 164	1 sample per 500 ton but not less than 1 per day	Behind laydown machine before rolling
		Gradation [1]) Table 703-6[5] or Table 703-2[6] or 3[6]				
403	Hot recycled asphalt concrete pavement	No. 4 (4.75 mm)	I	FLH T 514 and	1 sample per 500 ton but	Behind laydown machine
		No. 30 (600 µm)[5]	I	AASHTO T 30	not less than 1 per day	before rolling
		No. 40[6]	I			
		No. 200 (75 µm)	I			
		Other Specified Sieves	II			
405	Hot asphalt treated base course	Core Density	I	AASHTO T 166 and AASHTO T 209	1 sample per 500 ton but not less than l per day	In-place after compaction
		Smoothness [3]	I	Subsection 401.16	Subsection 401.16	Subsection 401.16

(1) Use only sieves indicated for the specified gradation. Do not use maximum or nominal maximum size sieve.
(2) Characteristic applies to surface course aggregate only.
(3) Applies only to an item used as a surface course.
(4) Item 307 only
(5) Does not apply to Item 405
(6) Item 405 only

Table 106 - 3 Material Subject to Statistical Based Acceptance (continued)

Section	Material	Quality Characteristic	Category	Test Method	Sampling Frequency	Point of Sampling
404	Open-graded asphalt friction course	Asphalt content	I	FLH T 516, FLH T 517, or AASHTO T 164	1 sample per 100 ton but not less than 1 per day	Hopper of laydown machine after discharge from plant
		Gradation [1]) Table 703-6				
		No. 4 (4.75 mm)	I	FLH T 514 and AASHTO T 30	1 sample per 100 ton but not less than 1 per day	
		No. 200 (75 µ m)	I			
		Other Specified Sieves	II			
406	Dense-graded emulsified asphalt pavement	Asphalt content	I	FLH T 516 FLH T 517, or AASHTO T 164	1 sample per 500 ton but not less than 1 per day	Behind laydown machine before rolling
		Gradation [1]) Table 703-7 or 703-8				
407	Open-graded emulsified asphalt pavement	No. 4 (4.75 mm)	I	FLH T 514 and AASHTO T 30	1 sample per 500 tons but not less than 1 per day	Hauling vehicle after discharge from plant
		No. 8 (2.36 mm)	I[4]			
		No. 200 (75 µ m)	I			
		Other Specified Sieves	II			
409	Asphalt surface treatment	Gradation[1]-- Table 703-9		AASHTO T11 and T 27	8 per project but not less than 1 per day	After discharge from aggregate spreader
		No. 4	I			
		No. 8	I			
		No. 200	I			
		Other Specified Sieves	II			
501	Portland cement concrete pavement	Compressive strength	II	AASHTO T 22	1 set per 2,500 yd² but not less than 1 per day	Discharge stream at point of placement
		Thickness [5]	II	AASHTO T 148	1 core per 2,500 yd²	In-place after sufficient hardening
		Smoothness [3]	I	Subsection 501.12	Subsection 501.12	Subsection 501.12
552	Structural concrete	Compressive strength	II	AASHTO T 22	1 set per 30 cy but not less than 1 per day	Discharge stream at point of placement

(1) Use only sieves indicated for the specified gradation. Do not use maximum or nominal maximum size sieve.
(3) Applies only to an item used as a surface course.
(4) This sieve is "Category II" for dense-graded mixes.
(5) Thickness is not a statistically based acceptance parameter unless payment is by the square yard.

TABLE 106-4
SCHEDULE OF MINIMUM ACCEPTANCE SAMPLING AND TESTING REQUIREMENTS
FOR USE WITH STANDARD SPECIFICATIONS FP-92

SECTION 204, EXCAVATION AND EMBANKMENT

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Backfill Material (704.03)	Quality	Roadbed	Continuous	Visual
	Proctor	Process material before incorporated in work.	1/material type	T 99 or T 180
Topping (704.05)	Classification	Roadbed	1/5000 cy/source	AASHTO M 145
	Proctor	Processed material before incorporated in work.	1/material type	T 99 or T 180
Unclassified Borrow (704.06)	Classification	Roadbed	1/5000 cy/source	AASHTO M 145
	Gradation	Roadbed	As needed	Visual
	Proctor	Processed material before incorporated in work.	1/material type	T 99 or T 180
Select Borrow (704.07)	Gradation	Roadbed	1/5000 cy/source	T 27, T 11
	Liquid Limit	Roadbed	1/material source or type	T 89
	Plasticity Index	Roadbed	1/material source or type	T 90
Select Topping (704.08)	Gradation	Roadbed	1/5000 cy/source	T 27, T 11
	Liquid Limit	Roadbed	1/material source or type	T 89
	Plasticity Index	Roadbed	1/material source or type	T 90
	Proctor	Processed material before incorporated in work	1/material type	T 99 or T 180

Roadbed (For Design Verification)	Classification and R-value	Sample depth 0-12"	1/2000 LF or change in material type	AASHTO M 145 and T 190

SUBSECTION 204.11, COMPACTION

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Earth Embankment	Deleterious material	Roadbed	Continuous	Visual
	Proctor	Processed material before incorporated in work.	1/material type	T 99 or T 180
	Density, Moisture	Compacted material	1/2000 cy or 1000 LF with minimum of 2/lift	T 191, T 205, FLH T 513

SECTION 208 & 209, STRUCTURE EXCAVATION AND BACKFILL

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Foundation Fill (704.01)	Classification	Source	1/material type	AASHTO M 145
	Proctor	Processed material before incorporated in work	1/material type	T 99 or T 180
	Density, Moisture	Compacted material	2/lift	T 191, T 205, FLH T 513
Bedding (704.02)	Gradation (A & B)	Source	1/material type	T 27, T 11
	Proctor (B&C)	Processed material before incorporated in work	1/material type	T 99 or T 180
	Density, Moisture	Compacted material	2/lift	T 191, T 205, FLH T 513

Structural Backfill (704.04)	Gradation Plasticity Index Proctor Density, Moisture	Source or stockpile Roadbed Processed material before incorporated in work. Compacted material	1/material type 1/material type 1/material type 2/lift	T 27, T 11 T 90 T 99 or T 180 T 191, T 205, FLH T 513

SECTION 301, UNTREATED AGGREGATE COURSE

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Aggregate	Density	In-Place after Compaction	1/1,000 Lane Feet (Minimum)	T 191, T 205 FLH 513

SECTION 306, DUST PALLIATIVE

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Magnesium chloride	Specific gravity	Truck	1/delivery	Hydrometer
Calcium chloride (725.02)	Quality	Truck	1/delivery	M 143
Emulsified asphalt (702.03)	Quality	Truck	1/delivery	T 59
Lignin sulfonate (725.20)	Specific gravity and pH	Truck	1/delivery	Hydrometer and T 289

SECTION 601, MINOR CONCRETE STRUCTURES

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
	TESTED BY THE CONTRACTOR			

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Portland cement concrete	Compressive strength	Discharge stream at point of placement	As directed by CO	T 22
	Air content	Discharge stream at point of placement	As directed by CO	T 152 (T 196 if required by CO)
	Slump	Discharge stream at point of placement	As directed by CO	T 119

SECTION 605, UNDERDRAINS

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Granular Backfill (703.03)	Quality Gradation	Source or stockpile Production or stockpile	1/material type 1/500 cy	See 703.03 T 27, T 11

SECTION 701,HYDRAULIC CEMENT

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Portland Cement, Masonry Cement	Quality	At job site	1/project	

SECTION 702,BITUMINOUS MATERIALS

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Asphalt Cements (702.01)	As specified	See Subsection 401.17	1/shipment	As specified
Cutback Asphalts (702.02)	As specified	See Subsection 401.17	1/shipment	As specified
Emulsified Asphalts (702.03)	As specified	See Subsection 401.17	1/shipment	As specified

SECTION 703, AGGREGATES

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
All	Quality	Source after processing and before mixing and placing	1/source	As specified

SECTION 704, SOIL

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
All	Quality	Source after processing and before mixing and placing	1/source	As specified

SECTION 705, ROCK

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
All	Quality	Source after processing and before mixing and placing	1/source	As specified

SECTION 709, REINFORCING STEEL AND WIRE ROPE

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Reinforcing Steel (709.01)	Quality	At job site	Three 3-foot bars of each size and grade of bar furnished	
Wire Rope or Wire Cable (709.02)	Quality	At job site	One 7-foot length for each size furnished	
Prestressing steel (709.03)	Quality	At job site	Three 3-foot bars of each size and grade of bar furnished	

SECTION 717, STRUCTURAL METAL

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
High Strength Bolts, Nuts, and Washers (717.01(e))	Quality	At job site	Minimum 6/shipment for each size used	
Elastomeric Bearing Pads (717.10)	Quality	At job site	1/project	

SECTION 725, MISCELLANEOUS

MATERIAL	PROPERTY	LOCATION	FREQUENCY	TEST METHOD
Lime	Quality	At job site	1/project	

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
402	Minor asphalt concrete	Additive mix, Materials mix Asphalt	Source and Quality, Gradation, Source speci-fication, Stability, Grade, Quality and amount	1 per mix	
306	Dust palliative	Magnesium chloride	As specified	1 per load	Certification from supplier
601	Minor concrete structures	Portland cement concrete	Air content Slump Unit weight Compressive strength	1 per load	When supplied from commercial mix plant
635.02	Temporary traffic control	Temporary raised pavement markings	Dimensions Specific intensity Load test	1 per source	Certification from supplier
		Reflective sheeting	Type	1 per source	Certification from supplier

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
701.01	Hydraulic cement	Portland cement and Masonry cement	M 85, M 240, or ASTM C 91 as applicable	1 per shipment	Certification signed by an authorized supplier to cover quantity of material and the condition of container for each shipment
702.01	Bituminous materials	Asphalt cements	M 20 or M 226 as applicable	1 per shipment	"
702.02	Bituminous materials	Cut-back asphalts	M 81 or M 82 as applicable	1 per shipment	"
702.03	Bituminous materials	Emulsified asphalts	M 140 or M 208 as applicable	1 per shipment	"
702.05 (a)	Bituminous materials	Primer for use with asphalt	M 116	1 per shipment	Certification signed by an authorized supplier to cover quantity of material and the condition of container for each shipment

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
		Primer for use with tar	M 121	1 per shipment	
702.05 (b)	Bituminous materials	Tar for mop or seal coats	M 118, Type II, ASTM D 2993 or ASTM D 3320 as applicable	1 per shipment	
702.05	Bituminous materials	Asphalt for mop coat	M 115, Type III	1 per shipment	
702.05 (d)	Bituminous materials	Waterproofing fabric	M 117	1 per shipment	
702.05 (f)	Bituminous materials	Asphalt plank	M 46	1 per shipment	
702.05 (g)	Bituminous materials	Asphalt roll roofing	ASTM D 224, Type II	1 per shipment	
703.07	Aggregates	Slag used as light weight aggregate	M 195	1 per material per source	
706	Concrete and Plastic pipe	Concrete & Plastic (poly-ethylene, polyvinyl chloride, and ABS) pipe	As specified	1 per shipment	
707	Metal pipe	Metal pipe	As specified	1 per shipment	

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
708	Paints	As specified	As specified	1 per batch	
709	Reinforcing steel and Wire rope	As specified	As specified	1 per heat as specified	
710	Fence and Guardrail	As specified	As specified	1 per shipment as specified	
711	Concrete curing materials and admixtures	As specified	As specified	1 per materials source	
712.01 (a)	Joint materials	Poured joint filler	M 173, M 282, or M 301 as applicable	1 per shipment	
		Hot poured sealants for asphaltic and concrete pavements	Subsection 712.01(a)	1 per shipment	
712.01 (b)	Joint materials	Performed bituminous joint filler	M 33	1 per shipment	
		Sponge rubber Cork joint filler and Self-expanding cork	M 153 as applicable	1 per shipment	

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
		Non-extruding and resilient bituminous joint filler	M 213	1 per shipment	
		Preformed elastomeric joint filler	M 220	1 per shipment	
712.01 (e)	Joint materials	Cold poured silicone sealant for concrete pavement	FS-TT-S-1543, Class A		

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
712.03	Joint materials	Ring gasket for rigid pipe	M 198 Type A or B as applicable		
		Ring gasket for flexible metal pipe	ASTM C 361		
		Continuous flat gaskets for flexible metal pipe	ASTM D 1056, Grade SCE 41 or SCE 43 as applicable		
712.06	Joint materials	Copper water stop or flashings	M 138		
712.07	Joint materials	Rubber water stop	Subsection 712.07		
712.08	Joint materials	Plastic water stop	Subsection 712.08		
714	Stabilization and filter fabrics and Pavement reinforcement fabric	Fabrics	As specified		
715	Piling	Piles	As specified		
716	Material for timber structures	Timber hardware	M 168 as specified		

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
717	Structural metal	Structural steels, Forgings, Pins, Rollers, Castings, Galvanized steel welded or Steel stud shear connectors, Aluminum alloy	As specified		Includes mill orders, certified mill test reports, Certification of Compliance and Sharpy V Notch Test. Results as applicable and signed by authorized representative of manufacturer.
718.12		Delineator and Object marker retro-reflectors	As specified 718.12	1 per shipment	
718.23 & 725.21		Epoxy resin adhesives	M 235 and M 237 as applicable		
725.02		Calcium chloride	M 144	1 per shipment	
		Sodium chloride	M 143	1 per shipment	
725.03		Hydrated lime	ASTM 207, Type N		
725.04		Fly ash	As specified		

TABLE 106-5
SCHEDULE FOR FULL OR PARTIAL ACCEPTANCE BY MATERIALS CERTIFICATION

SECTION	DESCRIPTION	MATERIAL	PROPERTY/ SPECIFICATION	FREQUENCY	GENERAL
725.05		Mineral filler	M 17	1 per material source and shipment	Does not include natural mineral aggregate or bag house fines used as filler
725.07 (a)	Masonry units	Sewer brick	M 91 Grade SM	1 per shipment	
725.07 (b)	Masonry units	Building brick	M 114 Grade SW	1 per shipment	
725.08	Masonry units	Concrete brick	ASTM C 55, Grade A	1 per shipment	
725.09 and 725.10	Masonry units	Concrete masonry blocks and Cellular concrete blocks	ASTM C 139, C 145 or C 90 as applicable	1 per shipment	
725.12		Frames, Grates, Covers, and Ladder rungs	As applicable		
725.14		Linseed oil	ASTM D 260, Type I or II		
		Mineral spirits	ASTM D 235		
725.20	Lignin sulfonate	Lignin sulfonate	Subsection 725.20	1 per shipment	

Section 107. -- LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01 Laws to be Observed. **Add the following:**

Do not disturb the area beyond the construction

limits.

Notify the Routt County Sheriff at least 3 days prior to commencing the following activities: all blasting, storage of explosives and detonators, and setting of any fires.

107.02 Protection and Restoration of Property and Landscape. **Add the following to the second paragraph:**

When necessary to relocate or reestablish U.S.G.S. bench marks or control points, do so according to the current procedures of the United States Geologic Survey.

Add the following:

Two known utilities are located within the project limits. Contact all utilities at least two weeks prior to beginning excavation and/or grading operations. Coordinate all grading operations with the utility companies. The utilities are as follows:

Yampa Valley Electric Association, Inc.
Attn. Chuck Osburne
P.O. Box 1218
Steamboat Springs, CO 80477
(303) 879-1160

U.S. West Communications
Attn. Kibbie Ward or Derrick Siwica
139 North 7th Street
Steamboat Springs, CO 80477
(303) 879-3070

A staging area has been provided on Bureau of Land Management land near Willow Creek (right of Station 155). Limit the staging area to 2 acres within the area shown on the plans. After completion of work, regrade and seed all disturbed areas. Do not disturb the existing corral in the staging area.

107.03 Bulletin Board. **Add the following:**

Display the following documents, furnished by the Contracting Officer, on the bulletin board:

(l) "Equal Opportunity" poster, according to FAR Contract Clause 52.222-26;

(2) A copy of the "Notice" that the project is subject to the provisions of Title 18, United

States Criminal Code, Section 1020;

(3) "Notice to Employees" poster, WH-1321, regarding proper pay;

(4) "Safety and Health Protection on the Job" poster, according to Title 29, Code of Federal Regulations, Part 1926; and

(5) The "General Wage Decision" contained in the contract.

Section 108. -- PROSECUTION AND PROGRESS

108.01 Commencement, Prosecution, and Completion of Work. **Amend the first sentence as follows:**

Change FAR Clause 52.212-3 to 52.211-10.

Add the following:

Limit operations as follows:

Begin no work prior to April 1, 1997. No work is permitted during the following holiday periods:
6 pm Friday, May 23, 1997 to 6 am Tuesday, May 27, 1997 (Memorial Day)
6 pm Thursday, July 3, 1997 to 6 am Monday, July 7, 1997 (Independence Day)
6 pm Friday, August 29, 1997 to 6 am Tuesday, September 2, 1997 (Labor Day)
and similarly throughout the life of the contract.

Work on not more than one continuous segment at any one time. The segments are defined as follows:
Segment 1 from Sta 150 to 220
Segment 2 from Sta 220 to 285
Segment 3 from Sta 285 to 350 (Segment 3A from Sta 302+50 to 305+00)
Segment limits may be adjusted slightly as approved by the CO. Keep the existing pavement in place until work begins on a segment. Do not begin work on a new segment until the subbase lift has been placed on the previous segment. All disturbed areas must have at least the subbase lift placed prior to winter shutdown (approximately November 1).

Repair the existing pavement according to Section 417 as directed by the CO.

Under Schedule A, complete pavement structure through

prime coat by August 15, 1998.

Notify Routt County two weeks prior to beginning clearing operations in the construction easement between Station 230 and 244 on the left side. The County must inventory the existing trees in this area prior to clearing. The Routt County contact is Paul Draper at (970) 879-0831.

Perform no work before 9:00 a.m. between Station 290 and 310 (Hahns Peak village).

Construct Segment 3A through the subbase lift between September 2, 1997 and October 31, 1997. Construct the Country Inn Driveway and Cottonwood Street through the aggregate base lift during this same time period. Complete all work (through aggregate base) on the Country Inn Driveway within 2 weeks after beginning any disturbance. Maintain access to the Country Inn Driveway at all times either directly from County Road 129 or from County Road 129 and Cottonwood Street. When access to the Country Inn Driveway is only available by way of Cottonwood Street, provide business access signs to direct traffic to the usable portion of the parking lot.

Notify Steamboat Lake State Recreation Area two weeks prior to beginning work on the Sage Flats and Placer Cove Entrance Roads. The contact is Dennis Scheiwe at (970) 879-3922.

108.02 Subcontracting. **Add the following:**

(a) General. **Monetary compensation is available for awarding subcontracts to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE) as defined by Contract Clause 52.219-8, "Utilization of Small, Small Disadvantaged and Women-owned Small Business Concerns."**

Compensation is intended to be used to locate, train, utilize, assist, and develop DBE/WBE's to become fully qualified subcontractors in highway construction and related fields. Provide direct assistance and consultation as necessary to the DBE/WBE in acquiring necessary bonding, obtaining price quotation, analyzing plans and specifications, and planning and management of the work. In providing this assistance do not supplant the DBE/WBE's primary responsibility for its own actions and management decisions.

Maintain records documenting assistance to the DBE/WBE, and shall make them available for Government review upon request.

For purposes of this provision, a small business concern will be considered a DBE or WBE after it has been certified as such, either by the U.S. Small Business Administration or any State's Department of Transportation. Certification by other Federal, State or Local Government agencies will be accepted, provided their certification criteria are equivalent to those in this provision. In lieu of this certification requirement the Government will consider an application for an ad hoc certification based on: (1) a written self-certification provided by the DBE/WBE subcontractor, (2) acceptable documentation as to the ownership and control of the company which supports the self-certification, and (3) documentation showing the disposition of any previous application for certification the subcontractor has made to any Federal, State or local Government agency. An ad hoc certification will not be granted to a firm which has been denied DBE or WBE certification by any Government agency unless the reasons for that denial have been resolved.

(b) Threshold. To be eligible for compensation subcontract not less than 10 percent of the original contract amount to DBE/WBE subcontractors. The DBE/WBE subcontractor must perform a commercially useful function which is a part of the requirements of the prime Contract. The DBE/WBE subcontract must provide that the DBE/WBE be compensated for the work of the subcontract in a manner which is consistent with customary industry practice, or with the manner in which the work is paid for by the Government. Generally, for onsite work this means the DBE/WBE must be compensated based on the quantity of work accomplished, rather than the labor, equipment and resources necessary to accomplish that work.

The following types and values of DBE/WBE subcontracts will be used to determine if the threshold requirement is met:

- Onsite subcontracts for work managed and supervised by the DBE/WBE -

The full value of these subcontracts will be

counted, except that the value of lower tier subcontracts to non-DBE/WBE's for onsite work must be for work incidental to, and necessary for the accomplishment of the DBE/WBE subcontract, and may not exceed 50 percent of the value of the DBE/WBE subcontract.

- Supply and other subcontracts to regular DBE/WBE businesses -

The full value of materials supply, hauling, equipment rental, and offsite subcontracts to DBE/WBE's will be counted provided the DBE/WBE has expertise and resources to perform this or similar work, and regularly does so.

© Compensation **Upon achievement of the minimum DBE/WBE subcontracting threshold, the Contractor will be eligible for compensation at the rate of 10 percent of the qualifying portion of all eligible DBE/WBE subcontracts. The qualifying portion of each DBE/WBE subcontract, which may be less than the amount computed in (b) above to determine compliance with the minimum threshold, will be determined as follows:**

- Subcontracts for work managed and supervised by the DBE/WBE, and performed predominantly onsite -

The qualifying portion of each subcontract is the net final amount paid to the DBE/WBE by the prime contractor for the subcontracted work, less the final value of all lower tier onsite and materials supply subcontracts to non-DBE/WBE's.

- Materials supply, equipment rental, offsite and other subcontracts to DBE/WBE's other than onsite subcontracts described above -

There is no qualifying portion for these subcontracts.

Total compensation under this provision will not exceed $50,000, if only one DBE/WBE subcontract which includes a qualifying portion is awarded, or $100,000, if more than one DBE/WBE subcontract which includes qualifying portions is awarded.

(d) Documentation. **If a determination of eligibility and payment under this provision is requested, the Contractor shall furnish acceptable**

evidence of each DBE/WBE's certification, copies of each executed, complete subcontract, and supporting documentation showing computation of qualifying portions of all subcontracts and anticipated compensation computed in accordance with this provision.

Upon completion of the subcontract work, the Contractor shall furnish a certified statement as to the final amount paid to each DBE/WBE subcontractor, with supporting documentation showing final computation and requested payments computed in accordance with this provision.

(e) Payment. **After a determination of eligibility, payment will be made as follows:**

Fifty percent of the anticipated compensation associated with each DBE/WBE subcontract will be paid when the DBE/WBE subcontractor commences work on the project.

The remainder of the compensation, based on the final subcontract amounts and computations, will be paid when the DBE/WBE subcontractor has satisfactorily completed all subcontract work, and the required documentation is submitted.

This payment will be full compensation for locating, selecting, training, assisting and developing the DBE/WBE subcontractors; for maintaining supporting records; and for taking all other actions necessary to comply with this DBE/WBE subcontracting provision.

The DBE/WBE subcontracting clause does not relieve the Contractor of responsibility under the contract for successful completion of the work.

108.03 Determination and Extension of Contract Time. **Amend the first sentence as follows:**

Change FAR Clause 52.212-3 to 52.211-10.

Delete the fifth paragraph on page 42.

108.04 Failure to Complete Work on Time. **Amend the first sentence as follows:**

Change FAR Clause 52.212-5 to 52.211-12.

Add the following to the last paragraph on page 42:

Liquidated damages will be assessed during periods of seasonal work shutdowns.

Table 108-1. **Delete the contents of the table and substitute the following:**

Original Contract Price		Daily Charge
From More Than ---	To and Including ---	
$ 0	**$2,000,000**	**$ 600**
2,000,000	**5,000,000**	**1,600**
5,000,000	**and more**	**1,800**

108.05 Suspension of Work. **Delete the title and text and substitute the following:**

108.05 Stop Order. **The CO may order the performance of the work to be stopped, either in whole or in part, for such periods deemed necessary due to the following:**

(a) **Weather or soil conditions considered unsuitable for prosecution of the work, or**

(b) **Failure of the Contractor to:**

(1) **Correct conditions unsafe for the workers or the general public.**
(2) **Carry out written orders given by the CO.**
(3) **Perform any provision of the contract.**

No adjustment in contract time or amount will be made for stop orders issued under (a) or (b) above, except an adjustment in contract time as provided by FAR Clause 52.249-10 - Default (Fixed-Price Construction) may be made when the Contractor is able to demonstrate that the weather was unusually severe based on the most recent 10 years of historical data.

Section 109. -- MEASUREMENT AND PAYMENT

109.05 Scope of Payment. **Delete the text and substitute the following:**

Payment for all contract work is provided either directly or indirectly, under the pay items shown in the bid schedule.

(a) Direct payment. **Payment is provided directly under a pay item shown in the bid schedule when one of the following applies:**

(1) **The work is measured in the Measurement Subsection of the Section ordering the work and the bid schedule contains a pay item for the work from the Section ordering the work.**

(2) **The Measurement Subsection of the Section ordering the work references another Section for measuring the work and the bid schedule contains a pay item for the work from the referenced Section.**

(b) Indirect payment. **Work for which direct payment is not provided is a subsidiary obligation of the Contractor. Payment for such work is indirectly included under other pay items shown in the bid schedule. This includes instances when the Section ordering the work references another Section for performing the work and the work is not referenced in the Measurement Subsection of the Section ordering the work.**

Compensation provided by the pay items included in the contract bid schedule is full payment for performing all contract work in a complete and acceptable manner. All risk, loss, damage, or expense arising out of the nature or prosecution of the work is included in the compensation provided by the contract pay items.

Work measured and paid for under one pay item will not be paid for under any other pay item.

The quantities shown in the bid schedule are approximate unless designated as a contract quantity. Limit pay quantities to the quantities staked, ordered, or otherwise authorized before performing the work. Payment will be made for the actual quantities of work performed and accepted or material furnished according to the contract. No payment will be made for work performed in excess of that staked, ordered, or otherwise authorized.

109.06 Pricing of Adjustments. **Delete the text and substitute the following:**

Determine all costs according to the contract cost principles and procedures of FAR Part 31. All FAR clauses providing for an equitable price adjustment

are supplemented as follows.

If agreement on price cannot be reached, the CO may determine the price unilaterally.

If the work will delay contract completion, request a time extension according to Subsection 108.03.

(a) Proposal.

(1) General. **Submit a written proposal for each line item of the work or a lump sum for the total work. Identify the major elements of the work, the quantity of the element, and its contribution to the proposed price. Provide further breakdowns if requested by the CO.**

When price is based on actual costs (e.g. cost-plus-fixed-fee), profit is based on the estimated cost of the work and may not exceed the statutory limit of 10 percent of the total cost. Due to the limited risk in this type of pricing arrangement, a lower profit percentage may be indicated.

(2) Data. **Submit information as requested by the CO to the extent necessary to permit the CO to determine the reasonableness of the proposed price.**

(3) Cost or pricing data. **When the contract modification exceeds the amount indicated in FAR Clause 52.214-27) Price Reduction for Defective Cost or Pricing Data - Modifications - Sealed Bidding, or FAR Clause 52.215-23 - Price Reduction for Defective Cost or Pricing Data - Modifications, submit cost or pricing data.**

Provide cost or pricing data, broken down by individual work item, for the Contractor and each major subcontractor. Include the information required by (b)(1) and (b)(2) below. When cost or pricing data is submitted before all or most of the work is performed, submit material and subcontractor quotes, anticipated labor and equipment usage, and anticipated production rates. Provide data for all proposed increases or decreases to the contract price.

Submit SF 1411, *Contract Price Proposal Cover Sheet*, and the written proposal for pricing the work according to (1) above, with the cost or pricing data.

Upon completion of negotiations, certify the cost or pricing data as being accurate, complete, and current as of the date the agreement was reached.

(b) Postwork pricing. When negotiating the price of additional or changed work after all or most of the work has been performed, furnish the following:

(1) Direct costs.

(a) Material. Furnish invoices showing the cost of material delivered to the work.

(b) Labor. Show basic hourly wage rates, fringe benefits, applicable payroll costs (i.e., FICA, FUTA, worker's compensation, insurance, and tax levies), and paid subsistence and/or travel costs, for each labor classification and foreman employed in the adjusted work.

© *Equipment* Provide a complete descriptive listing of equipment including make, model, and year of manufacture. Support rented or leased equipment costs with invoices. Determine allowable ownership and operating costs for Contractor and/or subcontractor owned equipment as follows:

(1) Use actual equipment cost data when such data can be acceptably determined from the Contractor's or subcontractor's ownership and/or operating cost records.

(2) When actual costs cannot be determined, use the rates shown in *Construction Equipment Ownership and Operating Expense Schedules (CEOOES)* published by the U.S. Army Corps of Engineers for the area where costs are incurred. This document is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325. Adjust the rates for used equipment and for other variable

parameters used in the schedules.

(3) **Compute proposed standby costs from acceptable ownership records or when actual costs cannot be determined, according to *CEOOES*. Do not exceed 8 hours in any 24-hour period or 40 hours in any calendar week. Do not include standby for periods when the equipment would have otherwise been in an idle status or for equipment that was not in operational condition.**

(d) Other direct costs. **Furnish documentation or invoices to support any other direct costs incurred that are not included above (e.g., bonds, mobilization, demobilization, permits, royalties, etc).**

(e) Production rates. **Provide actual hours of performance, on a daily basis, for each labor classification and for each piece of equipment.**

(f) Subcontract costs. **Provide supporting data as required above.**

(2) Overhead. **Identify overhead rate(s) and provide supporting data which justifies the rate(s). List the types of costs which are included in overhead. Identify the cost pool(s) to which overhead is applied. Apply the overhead to the appropriate pool.**

Limit Contractor overhead applied to subcontractor payments to 5 percent of such payments unless a higher percentage is justified.

(3) Profit. **Except when precluded by the FAR, include a reasonable profit reflecting the efficiency and economy of the Contractor and subcontractors in performing the work, the contract risk type, the work difficulty, and management effectiveness and diversity. For work priced after all or most of the work is performed, profit is limited by statute to 10 percent of the total cost. Due to the limited risk in post-work pricing, a lower profit percentage may be indicated.**

109.07 Force Account Work. **Delete the text.**

109.09 Progress Payments. **Add the following to the second-to-last paragraph on page 58:**

Partial payments for stockpiled manufactured material (aggregates) will be based on Contractor process control test results.

109.10 Final Payment. **Amend the first sentence to read:**

FAR Clauses 52.232-5, Payment under Fixed-Price Construction Contracts, and 52.232-27, Prompt Payment for Construction Contracts, are supplemented as follows:

Section 151. -- MOBILIZATION

Payment

151.03 (a) **Delete the text and substitute the following:**

Bond Premiums will be reimbursed according to FAR Clause 52.232-5(g), Payment Under Fixed-Price Construction Contracts, after receipt of evidence of payment.

Section 152. -- CONSTRUCTION SURVEY AND STAKING

Construction Requirements

152.02 General. **Delete the first paragraph and substitute the following:**

The Government will furnish to the Contractor one copy of each of the following information:

Elevations and locations for subgrade, top of subbase, and aggregate base course finishing stakes at 50-foot intervals.

Coordinates and elevations of traverse control points.

Benchmark data.

Slope stake books containing centerline grade and slope catch information at 50-foot intervals.

Computer listings containing: horizontal

alignment, vertical alignment, earthwork quantities, and staking details showing superelevation, template data, and slope information.

Plotted roadway cross-sections at 50-foot intervals.

The Government will perform the following:

Establish basic survey control points (T-points) for vertical and horizontal control of the project.

Set centerline stakes and terrain cross-section reference hubs at 50-foot intervals.

Establish bench marks at each end of the project and at intervals of approximately 1000 feet throughout the length of the project.

Add the following:

Furnish a practicable schedule of staking priorities for the construction schedule submitted according to Section 155. Include the dates and sequence of staking requirements.

Add the following to the second paragraph:

Prior to beginning construction, notify the Contracting Officer of any missing terrain cross-section reference hubs. Reestablish missing terrain cross-section reference hubs before slope staking begins.

Add the following to the third paragraph:

Protect all land survey monuments, property corners, U.S.G.S. bench marks and U.S.G.S. control points. Move and reference those which fall within the construction limits according to Subsection 107.02, Protection and Restoration of Property and Landscape. Coordinate the new locations with the Contracting Officer.

Add the following to the first paragraph on page 64:

Use the procedures contained in the current "Location/ Construction Surveying Guide" issued by the U.S. Department of Transportation, Central Federal Lands Highway Division, Denver, Colorado, as a guide to the

work in this Section.

Add the following to the fourth paragraph from the end of Subsection 152.02:

Record survey notes in field books furnished by the Government.

152.03 Survey and Staking Requirements.

(a) Control points. **Delete the second sentence.**

(b) Roadway cross sections. **Delete the text and substitute the following:**

Take additional cross-sections at significant changes in topography and at changes in the typical section. For each cross-section, measure and record points at breaks in topography, but at least every 20 feet. Take cross-sections normal to centerline. Measure and record points to at least the anticipated slope stake and reference locations. Reduce all cross-sections to horizontal distances from centerline.

The phrases "roadway cross-section locations" and "cross-section locations" used throughout this Section means both those terrain cross-section locations established by the Government and those cross-section locations established by the Contractor.

© Slope stakes and references **Add the following before the last sentence:**

Recatch slope stakes on any section that does not match the computerized catches within the tolerances established in Table 152-1. Take roadway cross-section data between centerline and the new slope stake location.

Add the following:

Furnish all completed slope stake notes at least weekly for review.

(e) Centerline re-establishment. **Add the following:**

Re-establish centerline as many times as necessary to construct the work.

(f) Grade finishing stakes. **Add the following:**

Set stakes, at 50-foot intervals, in all ditches to be

paved.

Use brushes or guard stakes at each stake. Hubs for subgrade shall be red tops. Hubs for aggregate course(s) shall be blue tops.

Amend the last sentence of the first paragraph as follows:

Set stakes at top of subgrade and at top of each aggregate course.

(g) Drainage structures. **Add the following after the second sentence:**

Discuss general culvert design criteria (grade, cover, skew, end treatment, etc.) and verify, in the field, the approximate location of each individual structure with the Contracting Officer prior to surveying, designing, and staking culverts. Use the procedures contained in "Guide for Designing and Staking Culvert in the Field", dated January 9, 1996, issued by the U.S. Department of Transportation, Central Federal Lands Highway Division, Denver, Colorado as a guide to the work in this Section.

(5) **Add the following:**

Plot on a 1 inch = 10 feet scale.

(l) Miscellaneous survey and staking. **Add the following:**

(6) **Re-establishing land survey monuments, property corners, U.S.G.S. bench marks, and U.S.G.S. control points found within the construction limits.**
(7) **Re-establishing missing terrain cross-section reference hubs prior to construction**

(m) Intermediate survey and staking. **Delete the first paragraph and substitute the following:**

Perform intermediate survey and staking necessary to construct the project from the basic layout and controls established in (a) through (l) above and (n) below.

Add the following:

(n) Approach road survey and staking. **Layout all approach roads for which no design is provided in the**

plans. Stake approach roads to fit field conditions. Establish centerline and radius points for a sufficient length to provide adequate design grade. Submit the proposed profile and cross-sections to the CO for approval. Perform all surveying required to construct the approach roads. This includes all applicable requirements of items (b) **through** (f) **of this subsection.**

Measurement

152.05 **Add the following to the third paragraph:**

Measurement for centerline re-establishment will be made one time.

Add the following to the fifth paragraph:

Surveyors' travel time to and from the project will not be measured for payment.

Add the following:

Approach road survey and staking will be measured by the each. Payment will only be made for those approach roads where no alignment or profile is shown in the plans.

Payment

152.06 **Add the following:**

Pay Item	Pay Unit
15212 Approach road survey and staking	**Each**

Section 153. -- CONTRACTOR QUALITY CONTROL

Description

153.01 **Add the following:**

This work also consists of obtaining samples for acceptance testing and furnishing a water and electrical supply for the Government's field laboratory (the Government-furnished laboratory is for the exclusive use of the Contracting Officer).

Furnish water to the Government field laboratory which is reasonably clear and free of oil, acid, rust,

alkali, sugar, and vegetable substances. Furnish 220-volt, 60-cycle, single-phase current adequate to operate all of the Government field laboratory facilities at all times as required by the CO. A minimum of 15 kilowatts of power at the entrance box is required for effective use of electrical equipment. Equip the power supply with a regulator that will limit the voltage of the power furnished to the laboratory to not more than 240 volts and not less than 220 volts.

Construction Requirements

153.02 Contractor Quality Control Plan. (a) Process control testing. **Add the following:**

The minimum quality control testing requirements are shown in Table 153-1. Where no minimums are specified, submit proposed tests to be performed and the proposed sampling and testing frequencies.

© Description of records **Add the following:**

Identify the format for reporting test results and the procedures to be used to maintain inspection records.

(d) Personnel qualifications. (1) **Add the following before the first sentence:**

Designate a Quality Control Supervisor (QCS) whose primary responsibility is managing the inspection system. The QCS shall not be the Contractor's Superintendent. Designate a QCS who is experienced to perform and supervise all sampling, testing, and inspection. The QCS shall monitor all phases of the work and identify deficiencies and take appropriate corrective action.

Add the following:

(3) **Personnel assigned to sampling, or testing shall have 1 year or more recent job experience in the type of sampling and testing required by the contract, and the following:**

NICET Level II certification in highway materials, or state or industry certification-related sampling and testing equivalent to their intended responsibilities,

or

Current or previous employment by an AASHTO accredited laboratory performing sampling and testing equivalent to their intended responsibilities.

Demonstrated proficiency or successful testing of one or more proficiency samples may be substituted for basic qualifications pending verification of test results.

153.03 Testing. **Delete the title and the text and substitute the following:**

153.03 Sampling and Testing. **Perform the work required by Table 153-1 and by the approved Quality Control Plan.**

(a) Sampling.

(1) Acceptance sampling. **Acceptance sampling schedules and times or locations will be provided by the Contracting Officer.**

(2) Quality control sampling. **Use a procedure for random sampling. Sample according to the approved quality control plan. In addition, sample any material that appears defective or inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or otherwise corrected.**

Sample and split samples according to the Materials Manual. Furnish approved containers for the Government's portion of samples. Label samples in an approved manner.

(b) Testing. **Furnish laboratory equipment which conforms to the applicable test requirements and is properly calibrated. Provide a certification stating that equipment conforms to requirements. The Contracting Officer may require the Contractor to perform testing to demonstrate acceptable equipment and an acceptable level of technician competence.**

Keep laboratory facilities clean and maintain equipment in proper working condition. Provide the Contracting Officer unrestricted access to the laboratory for inspection and review.

153.04 Records. **Add the following to the first paragraph:**

Furnish all test results in the minimum time reasonably necessary to perform the tests and transmit the results. When tests are on material being incorporated in the work, report test results within 24 hours.

Add the following to the second paragraph:

Detail the inspections performed including deficiencies observed and corrective actions taken.

153.05 Acceptance. **Delete the first sentence and substitute the following:**

The Contractor's quality control system will be evaluated under subsection 106.02 based on the demonstrated ability of the quality control system to result in work meeting the contract requirements.

Add the following:

If the Contractor's testing is verified by Government testing, the Contracting Officer may use the Contractor's results to document acceptance.

Measurement

153.06 **Delete the text and substitute the following:**

Contractor Quality Control will be measured by the lump sum.

Add the following:

Payment

153.07 **The accepted quantity, measured as provided above, will be paid at the contract unit price per unit of measurement for the pay item listed below that is shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section.**

The Contractor quality control lump sum will be paid as follows:

(a) **25% of the lump sum, not to exceed 0.5% of the original contract amount, will be paid after all testing facilities are in place, qualified sampling and testing personnel have been identified, and the work being tested has started.**

(b) **Payment for the remaining portion of the lump**

sum will be prorated based on the total work completed.

Payment will be made under:

Pay Item	Pay Unit
15301 Contractor Quality Control	**Lump sum**

TABLE 153-1
MINIMUM FREQUENCY SCHEDULE FOR PROCESS CONTROL SAMPLING AND TESTING
(TO BE PERFORMED BY THE CONTRACTOR)

SECTIONS 204, 208, 209

Construction Features Subject To Process control Sampling And Testing

- Embankment Construction
- Composition of Roadbed in Cuts
- Bedding and backfill for Structures and Culvert Pipe

Quality Characteristics To Be Controlled

- Optimum Density and Moisture
- Compaction
- Moisture Content
- Classification

Test Methods To Be Used

- T 99-C[1] (Moisture-Density Relations of Soils Using a 5.5 lb. Rammer and a 12-inch Drop) or
- T 180-D[1] (Moisture-Density Relations of Soils Using a 10 lb. Rammer and an 18-inch Drop)
- FLH T 513 (Determining the In-Place Density and Moisture Content of Soils and Aggregates)
- T 11 (Amount of Material Finer Than .075 mm Sieve in Aggregate)
- T 27 (Sieve Analysis of Fine and Coarse Aggregates)
- T 89 (Determining the Liquid Limit of Soils)
- T 90 (Determining the Plastic Limit and Plasticity Index of Soils)

[1] A minimum of five points are required for each proctor.

Sample Location and Frequency

Classification and Optimum Density and Moisture:

Sample Location: Anywhere from excavation or source of material

Sample Frequency: One per material type and one per change in material. Provide splits of samples to the CO.

Compaction and Moisture Content:

Sample Location: Compacted embankment, subgrade, or backfill

Sample Frequency: One per 50 linear feet per lift with a minimum of two per lift for structure and culvert backfill. For embankment and composition of roadbed in cuts, each test

station shall consist of two samples, one of which must be taken within 2 feet of the edge of the lift. Frequency of test stations is two per lift but not less than two for every 750 cubic yards of material placed.

SECTION 301, 303, 305

Construction Features Subject To Process Control Sampling And Testing

- Base Course Construction - Road Reconditioning
- Subbase Course Construction - Aggregate-Topsoil Course
- Aggregate Surface Course Construction

Quality Characteristics To Be Controlled

- Optimum Density and Moisture
- Compaction
- Moisture Content
- Gradation
- Plasticity Index (Aggregate Surface Course only)

Test Methods To Be Used

- T 180-D (Moisture-Density Relations of Soils Using a 10-lb. Rammer and an 18-Inch Drop) A minimum of five points are required for each proctor
- FLH T 513 (Determining the In-Place Density and Moisture content of Soils and Aggregates)
- T 11 (Amount of Material Finer Than .075mm Sieve in Aggregate), Item 301 only.
- T 27 (Sieve Analysis of Fine and Coarse Aggregates)
- T 90 (Determining the Plastic Limit and Plasticity Index of Soils)
- T 99-C (Moisture-Density Relations of Soils Using 5.5 lb Rammer and a 12-inch Drop). A minimum of five points are required for each Proctor, Item 305 Only.

Sample Location And Frequency

Optimum Density and Moisture:

Sample Location: Anywhere from source of material after processing.

Sample Frequency: One per material type, one per change in material, and as directed. Provide splits of samples to the CO.

Compaction and Moisture Content:

Sample Location: Compacted aggregate course

Sample frequency: Each test location shall consist of two samples, one of which must be taken within 2 feet of the edge of the lift. Frequency of sampling locations is two per lift for every 1000 linear feet. For areas less than 1000 linear feet in length, no less than two test locations per lift.

Gradation and Plasticity Index:

Sample Location: Crusher belt or as directed.

Sample Frequency: 2/day/stockpile and per source of material

SECTION 401, 403, 404, 405

Construction Features Subject to Process Control Sampling and Testing

- Hot Asphaltic Concrete

Quality Characteristics To Be Controlled

- Moisture Content of Aggregate
- Aggregate Gradation
- Adherent Fines (Coarse Aggregate)
- Compaction (Sections 401, 403, and 405)
- Placement Temperature
- Surface Tolerance
- Antistrip Additive

Test Methods To Be Used

- FLH T 509 (Drying Aggregate Samples using Microwave Oven), or other methods approved by the Engineer
- T 11 (Amount of Material Finer Than .075 mm Sieve in Aggregate)
- T 27 (Sieve Analysis of Fine and Coarse Aggregates)
- FLH T 512 (Adherent Coating (Fines))
- FLH T 513 (Determining the In-Place Density and Moisture Content of Soils and Aggregates)
- FLH T 503 (Determination of Presence of Anti-Stripping Compound in Asphaltic Materials) (Use solvent naptha only, for asphalt cements)

Sample Location and Frequency

Moisture Content of Aggregate:

Sample Location: Cold feed belt prior to entering drum for dryer drum plants. After drying but prior to mixing for other plants.

Sample Frequency: One per production day for dryer drum plants. One at start-up and one per week for other plants.

Aggregate Gradation:

Sample Location: From crusher belt during production of aggregates. From the cold feed belt during production of asphaltic concrete.

Sample Frequency: Two per day per stockpile being produced. One per day during production of asphaltic concrete, if directed.

Adherent Fines:

Sample Location: Crusher belt

Sample Frequency: One per week during production of coarse aggregates

Compaction:

Sample Location: Compacted mix on roadway

Sample Frequency: First day of production (to establish rolling pattern) 12 per 2000 lf, afterwards 2/2000 lf

Placement Temperature:

Sample Location: As directed.

Sample Frequency: One per truck or as directed.

Surface Tolerance: (reference specifications for surface tolerance requirements)

Sample Location: During and after compaction

Sample Frequency: Continuously, or as directed. Check the longitudinal and transverse surface tolerance, and check every joint.

SECTION 409 AND 410

Construction Features Subject To Process Control Sampling And Testing

- **Asphalt Surface Treatment**

Quality Characteristics To Be Controlled

- **Aggregate Gradation**
- **Adherent Fines (Coarse Aggregate)**
- **Flakiness Index**
- **Fractured Faces**

Test Methods To Be Used

- **FLH T 509 (Drying Aggregate Samples using Microwave Oven), or other methods approved by the Engineer**
- **T 11 (Amount of Material Finer Than .075mm Sieve in Aggregate)**
- **T 27 (Sieve Analysis of Fine and Coarse Aggregates)**
- **FLH T 512 (Adherent Coating (Fines))**
- **FLH T 507 (Fractured Faces)**
- **FLH T 508 (Determining the Flakiness Index and Average Least Dimension of Aggregates**

Sample Location And Frequency

Aggregate Gradation:

Sample Location: From crusher belt during production of aggregates

Sample Frequency: Two per day during production

Adherent Fines:

Sample Location: After processing and before placement

Sample frequency: One per source

Flakiness Index:

Sample Location: After processing and before placement

Sample Frequency: Three per production

Fractured Faces:

Sample Location: After processing and before placement

Sample Frequency: Three per production

SECTIONS 501 AND 601

Construction Features Subject to Process Control Sampling and Testing

- Reinforced Concrete Pavement
- Minor Concrete Structures

Quality Characteristics to be Controlled

- Entrained air content, slump, yield, unit weight, temperature.
- Aggregate gradation, moisture, and fineness modulus.

Test Methods to be Used

- T 119 (Slump of Portland Cement Concrete)
- T 121 (Weight per Cubic Foot, Yield, and Air Content (Gravimetric) of Concrete)
- T 27 (Sieve Analysis of Fine and Coarse Aggregates)
- T 255 (Total Moisture Content of Aggregate by Drying)
- T 11 (Amount of Material Finer than 0.075 mm Sieve in Aggregate)
- Fineness Modulus (Reference AASHTO M 45)
- FLH T 509 (Dry Aggregates Samples Using Microwave Oven)

Sample Location and Frequency

Entrained Air Content, Slump, Yield, Unit Weight, and Temperature:

Sample Location: At point of discharge
Sample Frequency:1/30 cy, minimum 1/day

Aggregate Gradation, Moisture, and Fineness Modulus

Sample Location: For moisture content from the stockpile after processing and before batching
Sample Frequency: Two per day per material

SECTION 552

Construction Features Subject To Process Control Sampling And Testing

- Structural Concrete

Quality characteristics To Be Controlled

- Entrained Air Content, Slump, Yield, Unit Weight, Temperature
- Aggregate Gradation, Moisture, and Fineness Modulus
- Quality Control of Mix

Test Methods To Be Used

- T 119 (Slump of Portland Cement Concrete)
- T 121 (Weight per Cubic Foot, Yield, and Air Content (Gravimetric of Concrete)
- T 152 (Air Content of Freshly Mixed Concrete by the Pressure Method)
- T 196 (Air Content of Freshly Mixed concrete by the Volumetric Method)
- T 11 (Amount of Material Finer Than .075 mm Sieve in Aggregate)
- T 27 (Sieve Analysis of Fine and Coarse Aggregates)
- FLH T 509 (Drying Aggregate Samples using Microwave Oven), or other methods approved by the Engineer
- Fineness Modulus (Reference AASHTO M45)

Sample Location And Frequency (Reference Subsection 552.09)

Entrained Air Content, Slump, Yield, Unit Weight, and Temperature:

Sample Location: At point of mixing until consistency is shown and at point of discharge

Sample Frequency: Prior to placement and periodically during placement as directed.

Aggregate Gradation, Moisture, and Fineness Modulus:

Sample Location: For moisture content, from the stockpile after processing and before batching. For gradation and fineness modulus, out of the weigh hopper.

Sample Frequency: Two per day per material. Fineness modulus not required for coarse aggregate.

Quality Control of Mix:

Sample Location: As described in subsection 552.09

Sample Frequency: Continuous

Section 154. -- CONTRACTOR SAMPLING AND TESTING

Delete the text of this Section.

Section 155. -- SCHEDULE FOR CONSTRUCTION CONTRACTS

155.05 Written Narrative. **Add the following:**

(j) **List anticipated monthly and cumulative contract earnings (including, for schedule updates, any contract modification) for each month from the beginning of construction operations through the completion of the work. Calculate and list each month's earnings through the close of business on the date provided by the CO as the cut-off date for monthly project pay estimates. Using this same cut-off date, also list anticipated monthly and cumulative working days for the duration of the project.**

Section 156. -- PUBLIC TRAFFIC

Construction Requirements

156.04 Maintaining Roadways During Work. (a) **Add the following:**

Do not construct or utilize detours unless included in the contract or approved by the Contracting Officer.

156.05 Maintaining Roadways During Suspension of Work. **Add the following:**

Properly shape and drain the roadway for winter maintenance prior to winter shutdown.

156.06 Limitations on Construction Operations. (d) **Delete the first sentence and substitute the following:**

For alternate one-way traffic control, provide a minimum lane width of 14 feet. For two-way traffic, provide a minimum roadway width of 22 feet.

(j) **Delete the text and substitute the following:**

Limit construction caused delays to public traffic to a MAXIMUM **of 30 minutes per passage through the project**

except that no delays will be permitted between 3:00 p.m. Friday through 6:00 p.m. Sunday from Memorial Day to Labor Day. Traffic on Sage Flats Road and Placer Cove Road (State Park roads) may be delayed a maximum of 15 minutes.

Section 157. -- SOIL EROSION CONTROL

Construction Requirements

157.03 Erosion Control Plan. **Delete the first paragraph and substitute the following:**

Standard erosion control devices are provided in the contract. Detail site-specific measures for controlling erosion and submit to the Contracting Officer for approval prior to implementation. Provide working drawings and associated data that are at least 8 ½ inches by 11 inches but not larger than 22 inches by 34 inches. Include the following in the plan:

- **Location of each proposed erosion control measure.**
- **Type of each erosion control measure.**
- **Quantities and estimated unit costs of proposed temporary erosion control devices to be implemented during construction.**
- **A schedule detailing coordination of erosion control measures with the various construction operations or stages. Include the furnishing, installation, maintaining, and removal of temporary devices and the installation of permanent erosion control features.**
- **A schedule outlining the proposed schedule of clearing and grubbing, excavation, embankment, and culvert operations such that the area of disturbed or erodible material is minimized. Schedule the work such that temporary and permanent erosion measures can be incorporated at the earliest practical time.**
- **Construction methods used in various items of work to minimize erosion.**

Add the following:

At least 5 days prior to the preconstruction conference, designate in writing a person responsible for supervising the erosion control and water quality measures throughout the duration of the project. This person shall not be the project superintendent. The erosion control/water quality supervisor shall be responsible for:

(a) **Developing and implementing an effective erosion control plan, including modifications and updates.**

(b) **Directing the construction, operations, and dismantling of temporary and permanent erosion control features.**

Implementing storm and winter shutdown procedures.

(d) **Monitoring the turbidity of waters adjacent to the project. Take turbidity measurements using an HF-DRT 15 turbidimeter or equivalent upstream of the project and 500 feet downstream of the area of the highest turbidity. If the measurements show and increase of 10 NTU or more, immediately suspend operations in the vicinity of the problem area and modify the erosion control plan to eliminate the cause of the high turbidity. Document all turbidity readings, locations, and actions taken, if any. Provide copies of the readings to the Contracting Officer within 24 hours. Also provide documentation of the meter calibration.**

157.04 Controls and Limitations on Work. **Add the following to the end of the second paragraph:**

The Contracting Officer may limit the area of clearing and grubbing, excavation, and borrow and embankment operations in progress commensurate with the Contractor's ability and progress in keeping the finish grading, mulching, seeding and other such permanent erosion and pollution control measures current.

When temporary erosion control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as part of the work in a timely manner, provide temporary measures at no cost to the Government.

(g) **Amend the text as follows:**

As soon as practical, but not to exceed 30 calendar days (unless a specific seeding season is identified in the contract), apply permanent turf establishment to the finished slopes and ditches according to Sections 624 and 625.

Add the following:

(j) **Construct temporary channels or otherwise divert live streams around or through work areas.**

157.05 Filter Barriers. **Delete the reference to brush barriers.**

Section 204. -- EXCAVATION AND EMBANKMENT

Description

204.02 Definitions. (a) Excavation. (2) Subexcavation. **Add the following:**

Subexcavation does not include the work required by Subsections 204.05, 204.06(b), and 204.06(c).

(d) Conserved Topsoil. **Add the following:**

Excavated material conserved from the roadway excavation and embankment foundation areas, including loam and topsoil from wetland impact areas, that is suitable for growth of hydrophytic vegetation.

Construction Requirements

204.04 Preparation for Roadway Excavation and Embankment Construction. **Add the following:**

Remove and stockpile wetland and upland plants required for transplanting into the wetland mitigation areas according to Section 626.04A prior to roadway excavation and embankment construction.

204.05 Conservation of Topsoil. **Amend the first sentence as follows:**

Conserve topsoil from the roadway excavation and from embankment foundation areas to the extent and depth determined by the Contracting Officer.

Add the following:

Conserve topsoil from the wetland take areas designated by the CO for use in wetland mitigation areas. Wetland take areas are wetland areas that will be impacted by construction activities. Cover and keep moist all wetland topsoil stockpiles. Do not place stockpiled topsoil in existing wetland habitat, stream corridors, or flood-prone areas. Place

conserved wetland topsoil in the wetland mitigation areas during the same growing season that it was stripped.

Do not strip the sod/vegetation mat from wetland impact areas until the vegetation "plug" transplants or shrub transplants have been obtained. Strip the sod/vegetation mat to a 6-inch (150 mm) depth and dispose of it in all other wetland impact areas from which hydric topsoil is to be obtained.

204.06 Roadway Excavation. **Add the following:**

(d) Wetland replacement areas. **Overexcavate wetland mitigation areas 12 inches (300 mm) below the elevations shown on the plans. Do not operate mechanical rollers or other similar equipment in the wetland replacement areas. Limit the movement of construction equipment across the wetland replacement areas.**

204.07 Subexcavation. **Delete the fourth sentence and substitute the following:**

Dispose of unsuitable material in fills not supporting the pavement structure, false cuts, berms, or in wetland mitigation areas. Dry the material before placing.

204.08 Borrow Excavation. **Add the following:**

Suitable material from Wetland Mitigation Area 1 may be used as unclassified borrow source material. This material will require some processing to conform with Section 704.06. For design purposes, a total of 30,000 bank cubic yards of material is thought to exist at this location. There is no warranty that the material found at this location is suitable as unclassified borrow. Refer to Materials Report 96-09 dated June 1996 for results of Government sampling and testing of this area. The Contractor is responsible for obtaining a source of additional unclassified borrow to make up the total quantity needed.

204.11 Compaction. (b) Earth embankment. **Delete the first paragraph and substitute the following:**

Adjust the moisture content of materials classified A-1 through A-5 according to AASHTO M 145, to a moisture content suitable for compaction. Adjust the moisture content of A-6 and A-7 soils to within ± 2% of the optimum moisture content.

Delete the second paragraph, and substitute the following:

Compact material placed in all embankment layers and the material scarified in cut sections to a uniform density of not less than 95% of the maximum density.

Determine the optimum moisture content and maximum density according to AASHTO T 180, Method D, for materials classified A-1 or A-2-4, according to AASHTO M 145; and according to AASHTO T 99, Method C, for all other materials classifications.

Add the following:

© Wetland replacement areas. **No mechanical rollers or other similar compaction equipment shall be operated on, or allowed within, the wetland mitigation areas; and the movement of machinery within or across wetland mitigation areas shall be limited to avoid adverse compaction of the soil.**

204.13 Sloping, Shaping, and Finishing. (d) Finishing. **Add the following:**

Finish earth roadbeds to within 0.05 foot (15 mm) and rock roadbeds to within 0.10 foot (30 mm) of the staked line and grade. Finish ditch cross-sections to within 0.10 foot (30 mm) of the staked line and grade. Maintain proper ditch drainage.

Complete slopes and ditches prior to placing subbase, base or aggregate surfacing courses.

204.14 Disposal of Unsuitable or Excess Material. **Delete the text and substitute the following:**

Dispose of unsuitable or excess material in the following areas as directed by the CO:

- **(a) Excavate additional material which is suitable for unclassified borrow in Wetland Mitigation Area 1, and replace with unsuitable or excess material to the grades shown on the plans.**
- **(b) Flatten the slopes over the existing ditch from Station 264 to 267 on the right.**
- **© Place in fills flatter than 2:1 slope ratio which do not support the roadway prism, and in false cuts**
- **(d) Flatten existing fill slopes within the right-of-way limits**
- **(e) Roadway obliteration areas**

Dispose of any additional unsuitable or excess

material off the project.

Measurement

204.16 (a) Roadway Excavation. **Amend the first sentence as follows:**

When a roadway excavation pay item is shown in the bid schedule and there is no pay item for embankment construction, measure by the cubic yard in its original position as follows:

(1) **Add the following:**

(j)	**Material excavated from Wetland Mitigation Sites 2 and 3, not including topsoil.**

(2) **Add the following:**

(a)	**Overburden includes topsoil stripped from wetland mitigation areas.**
(m)	**Material excavated from Wetland Mitigation Site 1.**

© Borrow excavation **Amend the last sentence as follows:**

Upon completion of excavation, remeasure cross-sections after waste materials are returned to the source but before replacing the overburden.

Payment

204.17 **Add the following:**

Payment for Item 20401, Roadway Excavation, is limited to 10% of the plan quantity of excavation in the cut until the slope rounding in that cut is completed.

Section 206. -- WATERING

Construction Requirements

206.03 General. **Delete the text and substitute the following:**

Provide an adequate water supply and apply water needed at all hours (including nights, weekends, and period of nonwork) as necessary to control dust. Uniformly apply water using pressure-type distributors, pipelines equipped with spray systems, or hoses and nozzles.

(a) Project dust control for public benefit. **Control dust within the construction limits at all hours when the project is not open to public traffic, control dust in areas of the project which neighbor inhabited residences or places of business. Control dust on approved, active detours established for the project. Apply water at the location, rates, and frequencies ordered by the CO.**

(b) Other dust control. **Control dust on active haul roads, in pits and staging areas, and on the project during all periods not covered in (a) above.**

Measurement

206.05 **Delete the text and substitute the following:**

When applied according to subsection 206.03(a), measure watering for dust control by the M-gal (1,000 gallons) in the hauling vehicle or by metering. Do not measure water applied according to subsection 206.03(b) for payment.

Section 209. -- STRUCTURE EXCAVATION AND BACKFILL

Construction Requirements

209.08 Foundation Preparation. **Add the following:**

For pipe culverts, when rock, hardpan, or other unyielding material is encountered, remove the material below foundation grade for a depth of at least 12 inches or ½ inch for each foot of fill over the top of pipe, whichever is greater, but not to exceed 24 inches. Excavate to a width at least 6

inches greater than the horizontal outside diameter of the pipe. Replace the removed material with foundation fill material according to subsection 208.09(d).

209.09 Bedding. (b) Culverts. **Add the following:**

The bedding requirements for (2) Class B and (3) Class C are waived if lean concrete backfill is used.

209.10 Backfill. **Add the following:**

As an alternative to backfill material, the Contractor may provide lean concrete backfill for structure backfill of pipe culverts. When utilizing lean concrete backfill, furnish materials and perform the work according to Section 638.

209.09 Bedding **and** 209.10 Backfill. **Add the following:**

For bedding and backfilling to 1 foot (0.3 m) over the top of all plastic pipe, use Class C bedding which, in addition to the Class C bedding requirements, conforms to Table 2 of AASHTO M 145 for Classification A-1, A-2, or A-3 soils.

Measurement and Payment

209.13 **Delete the last paragraph and substitute the following:**

Foundation fill will not be measured for payment.

Section 251. -- RIPRAP

Description

251.01 **Add the following:**

This work also consists of furnishing and placing weir structures and check structures.

Construction Requirements

251.04 Loose Riprap. **Add the following:**

(a) Willow Creek Weir - Site One. **Loose riprap (boulders) used for construction of the Willow Creek weir at Site One shall be placed as shown on the drawings without any gaps, so that each boulder**

touches all the adjacent boulders. Gaps between boulders shall be as small as possible. Interlock irregular shapes as close together as practical.

(b) Rock Cascade - Site Two. **Place geotextile lengthwise along the cascade. Fasten it to the ground with metal staples in two vertical rows, at staggered 3' (0.9 m) intervals. Excavate a key trench at the downslope end of the rock cascade. Place loose end of geotextile around the entirety of the trench perimeter with an 18" (0.45 m) flap remaining free on the end.**

251.06 Mortared Riprap. **Add the following:**

Any loose material between rocks and boulders shall be removed to insure complete mortar penetration down to the subgrade. Mortar will be kept a minimum of 6-inches (150 mm) below the exposed rock and boulder surfaces. The visual surfaces of the rock and boulders shall be free of mortar to provide a clean, natural appearance.

(a) Check Structures. **Mortared riprap (rock) used for construction of the check structures shall be machine placed to the lines and grades shown on the drawings. Placement shall be made to insure a properly interlocked mass of rock. The rock will be consolidated using the bucket of an excavator or by other means that will cause proper interlocking.**

Section 301. -- UNTREATED AGGREGATE COURSES

Construction Requirements

301.03 General. **Add the following:**

Salvage the top 12" (approximate) of the existing pavement and base material for use as a subbase course. Break up the pavement to 100 percent passing the 2-inch sieve. The existing pavement structure has approximately 2 inches of pavement above approximately 12" or more of aggregate base. Refer to Materials Report 95-01 dated January 1995 for results of Government sampling and testing of the existing roadway material.

301.04 Mixing and Spreading. **Add the following after the first sentence:**

Prior to spreading, mix the aggregate until a uniformly graded mixture is obtained. During mixing,

add sufficient water to provide the optimum moisture content for compaction.

301.06 Surface Tolerance. **Delete the text and substitute the following:**

If grade finishing stakes are used, finish the surface to within +/- 0.04 foot (10 mm) from the staked line and grade elevation. If finish stakes are not required, shape the surface to the required template and finish the surface such that there are no deviations in excess of 0.05 foot (15 mm) between any two contacts of a 10-foot (3 m) straightedge with the surface.

Correct all defective areas by loosening the material, adding or removing material, reshaping, and compacting.

Measurement

301.09 **Delete the second sentence and add the following:**

Cubic yard measurement will be made in the final position.

Payment

301.10 **Add the following:**

Pay Item	Pay Unit
30114 Remove pavement structure and replace as subbase	**Cubic yard**

Section 306. -- DUST PALLIATIVE

Material

306.02 **Add the following:**

Magnesium Chloride	**725.27**

Construction Requirements

306.03 General. **Add the following to the first paragraph:**

Do not apply to frozen surfaces.

Do not apply magnesium chloride to designated surfaces until hauling of other project materials are completed.

306.04 Preparation and application. **Add the following:**

(c) Magnesium Chloride. **Apply Magnesium chloride dust palliative on crushed aggregate surfacing or the base course or as directed by the CO. Prepare surfaces in accordance with subsection 303.07.**

When required, lightly spray the road surface with water prior to the magnesium chloride application. Apply magnesium chloride at a rate of 0.40 to 0.50 gallons per square yard in two applications. Application rates may be changed by the CO during the dust treatment process.

Payment

306.07 **Add the following:**

Pay Item	Pay Unit
30607 Magnesium Chloride	**Ton**

Section 401. -- HOT ASPHALT CONCRETE PAVEMENT

Construction Requirements

401.03 Composition of Mixture (Job-Mix Formula). **Amend the second paragraph as follows:**

Furnish mixtures of aggregate, asphalt, and additives that meet the applicable aggregate gradation of Table 703-6 and design parameters (a)(1), (a)(2), (c)(2), and (e) in Table 401-1 for the mix class shown in the bid schedule.

(a) Aggregate and mineral filler. (5) **Delete the text.**

401.09 Aggregate Preparation. **Add the Following:**

When antistrip additive is required to meet the mix design specifications in Table 401-1, use hydrated lime. Add hydrated lime to the aggregate by method A, B, or C as follows:

Use calibrated weighing or metering devices to measure

the amount of hydrated lime and moisture added to the aggregate.

Method A - **Add hydrated lime to the combined aggregate using an enclosed in-line cold feed mechanical mixer (pugmill) at a point just prior to introduction of aggregate into the dryer or dryer drum.**

The aggregate prior to mixing with lime shall have a minimum of 3% moisture by dry weight of aggregate.

Method B - **Add hydrated lime to the produced aggregates during stockpiling using a pugmill. Add twenty-five (25) percent of the lime to be added, to the coarse aggregate stockpile, and seventy-five (75) percent of the lime to be added, to the fine aggregate stockpile. When more than two stockpiles are used, the distribution of lime per stockpile shall be included in the mix design.**

Minimum moisture content shall be two (2) percent by dry weight for the coarse aggregate and four (4) percent by dry weight for the fine aggregate at the time the aggregates and lime are mixed.

Method C - **Use a lime slurry consisting of one part hydrated lime and three parts water. The plant shall be equipped with a mixing unit to allow mixing of the slurry and aggregate prior to entering the dryer or dryer drum.**

The moisture requirement of the coarse and fine aggregate or combination of aggregates may be increased to obtain proper coating of the aggregate with hydrated lime.

Obtain approval of synchronized metering and weighing devices used to introduce a constant rate of hydrated lime and water, prior to the production of any hot asphalt concrete pavement.

401.12 Production Start Up Procedures. **Add the following to the first paragraph:**

At least 2 weeks prior to the start of paving operations, the CO will designate a time and place for a pre-paving conference. Be prepared to discuss and/or submit the following:

1.
Proposed schedule of paving operations.

2. A list of all equipment and personnel to be used in the production and construction of the work.

3. A proposed Traffic Control Plan.

4. Discuss Section 153, Contractor Quality Control, minimum frequency schedule for process control sampling and testing (to be performed by the Contractor).

5. Discuss subsections 401.12, Production Start-up Procedures (control strip); 401.13, Placing and Finishing; 401.14, Compacting; and 401.16, Pavement Smoothness (profilograph measurements).

6. Discuss subsections 106.05, Statistical Evaluation of Materials for Acceptance; 401.17, Acceptance Procedures for Asphalt; and acceptance of the work.

Amend the first sentence of the second paragraph as follows:

On the first day of production, produce sufficient mix to construct a 1000 foot long control strip, one lane wide, at the designated lift thickness.

Amend the last sentence in the third paragraph as follows:

Cease production after construction of the control strip until the asphalt concrete mixture and the control strip are evaluated and accepted, or up to three days, whichever occurs first.

Add the following at the end of the subsection:

Unacceptable control strips will be rejected. See Subsection 106.05(b) for disposition of material incorporated into unacceptable control strips. Repeat the control strip process until an acceptable control strip is produced.

(a) Asphalt content and aggregate gradation. **Delete the text and substitute the following:**

Take at least five control strip asphalt concrete mixture samples. The samples will be evaluated

according to Subsection 401.18(a), (b), and Subsection 106.05. The mixture is acceptable when the pay factor which results from the five samples equals or exceeds 0.90.

(b) Density. **Delete the text and substitute the following:**

At a minimum of 5 locations within the control strip, take nuclear gauge readings and cut core samples. The core samples will be evaluated according to Subsection 401.18© and Subsection 106.05. The density is acceptable when the pay factor which results from the five samples equals or exceeds 0.90.

Take nuclear density readings behind each roller pass to determine the roller pattern necessary to achieve specifications without damaging the mix. Furnish the Contracting Officer with the nuclear density gauge readings.

401.16 Pavement Smoothness. **Delete the text and substitute the following:**

After final rolling, measure the smoothness of the final surface course or the surface immediately under an open-graded asphalt friction course.

(a) Profilograph measurements. **Measure the traveled way parallel to the centerline according to FLH T 504 after mainline paving is completed. Furnish a California-type profilograph conforming to FLH T 504; the CO will direct and observe its operation. Operate the profilograph in the "manual" mode such that the plot produced can be reduced in accordance with FLH T 504. Submit the original plot to the CO.**

Exclude the following areas from the profile index and profilograph bump determination: bridge decks, cattle guards, traveled way lanes with horizontal curvature less than 500 foot radius, transverse joints with existing pavements, turning or passing lanes less than 300 feet in length, driveways, parking areas, and side roads less than 300 feet in length. Measure excluded areas and Type IV pavements according to (b) below.

A profile index will be calculated for each 0.1 mile lane of traveled way using a 0.20 inch wide blanking-band. The profile index will be determined according to FLH T 504. Bumps will be located using a 0.4 inch bump template. Defective areas are bumps in excess of 0.4 inch in 25 feet, 0.1 mile profile indexes greater

than the defective limit in Table 401-4, and surfaces with a pay factor less than 0.75 as determined according to Subsection 106.05.

Table 401 - 4

Pavement Smoothness Type	Profile Index - inches/mile		D
	Upper Specification Limit	Defective Limit	Factor Used In Pay Adjustment Formula (401.20)
I	5	10	25000
II	8	12	20000
III	10	15	15000
IV	Subject to straight edge measurement only - 401.16(b)		N/A

(b) Straightedge measurement. **Use a 10-foot metal straightedge to measure at right angles and parallel to the centerline. A defective area is an area with surface deviations in excess of 0.20 inch in 10 feet.**

(c) Defective area correction. **Correct defective areas from (a) and (b) above. Obtain approval for the proposed method of correction.**

Remeasure corrected areas according to (a) and (b) above. The smoothness pay factor will be recomputed after measurement.

401.17 Acceptance Procedures for Asphalt. (d) Acceptance sampling procedures. (2) Asphalt initially discharged into storage tanks. **Add the following:**

Measure the amount of material in the storage tank and the materials temperature before and after each delivery. The amount of material represented by each sample is that quantity in the storage tank after delivery.

401.18 Acceptance. **Add the following at the beginning of the subsection:**

Provide the solvent used for determining the gradation of paving aggregate according to Table 106-3. Use of approved maximum strength biodegradable solvents is

required. Information on the source of supply of approved solvents may be obtained by contracting the CFLHD Central Materials Laboratory at telephone (303) 236-4394. Approximately 1 3/4 gallons of solvent will be required for each acceptance test of asphalt mixtures. Additional quantities will be required for equipment calibration and clean up. Do not begin paving operations until an adequate quantity of the solvent is available. Provide a copy of the current Material Safety Data Sheet for the solvent. Remove and dispose of the solvent after use.

Payment

401.20 **Delete the text, except for the pay item listing, and substitute the following:**

The accepted quantities, measured as provided above, will be paid at the contract price per unit of measurement for the pay items listed below that are shown in the bid schedule except the hot asphalt concrete pavement contract unit bid price will be adjusted according to Subsection 106.05. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Payment for hot asphalt concrete pavement will be made at a price determined by multiplying contract unit bid price by material pay factor. The material pay factor is the lowest single pay factor determined for any gradation, asphalt content, or density. When the bid schedule contains a pay item for hot asphalt concrete pavement with Type I, II, or III pavement smoothness, a separate adjustment will be made for longitudinal pavement smoothness according to the following formula:

$$A = D(PF - 1.00)(L)$$

Where:

A = Adjustment to contract payment in dollars for pavement smoothness.

D = Factor from Table 401-4

L = Total project length in lane miles of traveled way.

PF =
Pay factor for smoothness with respect to the upper specification limit determined according to

Subsection 106.05 after completion of corrective work.

Section 409. -- ASPHALT SURFACE TREATMENT

Construction Requirements

409.13 Acceptance. **Delete the first sentence of the first paragraph and substitute the following:**

Asphalt surface treatment construction will be accepted under Subsection 106.04. Aggregate gradation will be accepted under Subsection 106.05. The upper and lower specification limits will be the target values plus or minus the allowable deviations show in Table 703-9.

Payment

409.15 **Delete the text and substitute the following:**

The accepted quantities, measured as provided above, will be paid at the contract price per unit of measurement adjusted according to Subsection 106.05 for the pay items listed below that are shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section.

Section 417. -- MINOR COLD MIX ASPHALT MIX

Description

417.01 **This work consists of furnishing and placing cold asphalt mix as a patching material for temporary roadway maintenance within the project limits.**

Material

417.02 **Material shall conform to the following Subsections:**

Cold asphalt mix 702.09

Construction Requirements

417.03 Composition of Mix (Job-Mix Formula). **Submit the strength, quality, and gradation specifications for the cold asphalt mix. Include copies of laboratory test reports that demonstrate the properties of the aggregates, asphalt cement,**

additives, and mix meet Federal or state agency specifications.

417.04 Surface Preparation. **Prepare the surface according to Section 303.07.**

417.05 Placing. **Place the mix with appropriate equipment to produce a uniform surface. For roadway paving, do not place lifts thicker than 4 inches. Spread and finish each course by hand raking, screeding, or by other approved methods. Construct a surface that is uniform in texture and cross-section. Construct joints or tapers as required.**

417.06 Compacting.

(a) Roadway paving. **Compact by rolling with a steel-wheeled roller weighing at least 9 tons.**

(b) Non-roadway paving and patching. **Compact by rolling with a hand-operated roller weighing at least 285 pounds or with a small power roller.**

Compact areas that are not accessible to rollers by other approved methods.

417.07 Acceptance. **Minor cold asphalt mix will be evaluated under Subsections 106.02 and 106.03.**

Minor cold asphalt mix construction work will be evaluated under Subsections 106.02 and 106.04.

Measurement

417.08 **Measure minor cold asphalt mix by the ton.**

Payment

417.09 **The accepted quantities, measured as provided above, will be paid at the contract price per unit of measurement for the pay item listed below that is shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section.**

Payment will be made under:

Pay Item		Pay Unit
41701	**Minor cold asphalt mix**	**Ton**

Section 601. -- MINOR CONCRETE STRUCTURES

Construction Requirements

601.07 Acceptance. **Add the following:**

When compressive strength samples are taken to confirm the certification, the curing of concrete cylinders as specified in AASHTO T 23 is modified to allow curing of concrete for 28 days in waterproof molds without stripping the molds in the specified 24 ±8 hours.

Section 602. -- CULVERT AND DRAINS

Construction Requirements

602.05 Laying Metal Pipe. **Add the following:**

In no case shall the difference in diameter of abutting ends of pipes exceed ½ inch.

Add the following to the second paragraph:

The minimum width for coupling bands shall be 10 ½ inches.

Section 605. -- UNDERDRAINS

Construction Requirements

605.06 Placing Geocomposite Sheet Drain. **Add the following to the fourth paragraph:**

Compact to 85% of maximum density as determined by AASHTO T 99 Method C.

Measurement

605.09 **Add the following:**

Underdrain system will be measured by the linear foot.

Payment

605.10 **Add the following:**

Pay Item	Pay Unit
60508 Underdrain system	**Linear foot**

Section 609. -- CURB AND GUTTER

Construction Requirements

609.05 Portland Cement Concrete Curb or Curb and Gutter. (b) Slip-formed. **Delete the last paragraph and substitute the following:**

Construct contraction and expansion joints, according to (a) above, in a manner approved by the Contracting Officer.

Section 619. -- FENCE

Payment

619.09 **Add the following:**

Payment for fence includes removal of existing fence and moving fence to accommodate construction operations. Fence must be in place at all times at the Vesely property (Sta 158 to 172).

Section 622. -- RENTAL EQUIPMENT

Construction Requirements

622.02 Rental Equipment. **Add the following:**

Type of equipment shall be as follows:

Truck, highway, 10-wheel, 3-axle, rear dump, 54,000 gvw min., 230-250 horsepower, 10-12 cubic yard capacity.

Loader with backhoe, wheel type, 60-75 horsepower, 1.00 cubic yard bucket with 24-inch minimum B/H dipper, equivalent to a Case 580 or John Deere 410.

Steel drum roller,

Front-end loader, wheel type, 205-225 horsepower, minimum 4.00 cubic yard bucket, equivalent to a Caterpillar 966E.

Crawler tractor (dozer), 200-230 horsepower, with hydraulic tilt blade equivalent to a Caterpillar D7H.

Motor grader, 145-155 horsepower, equivalent to a Caterpillar 140G.

Hydraulic excavator, tractor type, 140-150 horsepower, 1-1.25 cubic yard bucket, equivalent to a Caterpillar 225B.

Section 624. -- TOPSOIL

Construction Requirements

624.03 Topsoil. (b) Conserved. **Add the following:**

If the native topsoil collected from the wetland take areas is insufficient, provide additional topsoil to meet the 12" (300 mm) depth required in all wetland mitigation areas. Additional topsoil shall be free of weedy species.

624.05 Placing Topsoil. **Add the following:**

Place the native wetland topsoil from the wetland take areas atop imported topsoil (if any) in the wetland mitigation areas. Onsite, native wetland topsoil shall comprise the upper soil layer in all wetland mitigation areas.

Do not compact topsoil in wetland mitigation areas during or after grading operations. Place wetland topsoil beginning in the lowest or center part of the wetland mitigation area and proceed upward and outward. Place topsoil in lifts to match the elevations specified in the construction plans. Maintain topsoil in a moistened condition until final placement is complete.

Fine grade the topsoil to produce a reasonably smooth, well drained finish. The profile grade in all wetland mitigation areas shall be within 0.5 foot (150 mm) of the grades specified in the construction plans. The vertical elevation difference between the finished profile grade of all wetland mitigation areas and the invert of all associated mitigation water control structures shall not be greater than 0.1 foot (30 mm) as specified in the construction plans.

Section 625. -- TURF ESTABLISHMENT

Material

625.02 **Add the following:**
The seed mixture for all upland and disturbed areas (i.e., all areas except wetland mitigation areas) shall consist of the following:

Upland and Disturbed Area Seed Mix

Common Name	Scientific Name	% of Mix	lbs./acre PLS
western wheatgrass	*Agropyron smithii*	20	7.9
mountain brome	*Bromus marginatus*	15	4.1
Canada wildrye	*Elymus canadensis*	20	7.6
slender wheatgrass	*Elymus trachycaulus*	15	4.1
Arizona fescue	*Festuca arizonica*	20	1.6
needle & thread	*Stipa comata*	10	3.8

The seed mixture for all wetland mitigation areas shall consist of the following:

Hydrophytic Seed Mix

Common Name	Scientific Name	Rate	lbs./acre PLS
blue-joint reedgrass	*Calamagrostis canadensis*	0.6 lb./acre	1.75
tufted hairgrass	*Deschampsia cespitosa*	0.5 lb./acre	1.46
fowl bluegrass	*Poa palustris*	0.3 lb./acre	0.87

Construction Requirements

625.03 Turf Establishment Seasons. **Add the following:**

Seed between September 1 and October 31 but prior to frost or snow cover. Seed as soon as practical on portions of the project that are completed during each seeding season.

625.06 Fertilizing. **Add the following:**

Apply fertilizer (40:20:20) in all areas except wetland mitigation areas at the following rate per acre:

Pounds available nitrogen	**100**

Pounds available phosphorous	**50**
Pounds available potassium	**50**

625.07 Seeding. **Add the following:**

Do not use seed which has become wet, moldy or otherwise contaminated or damaged.

(a) Dry Method. **Add the following:**

Apply seed using broadcast or drill methods. Seed mixes shall be combined with sand or vermiculite for ease of spreading. If broadcasted, the spreader shall be set on low, and the entire wetland mitigation area will be covered twice to insure maximum coverage. Hydroseeding shall not be used in wetland mitigation areas or flood prone areas as the binding material will float and wash away. Apply seed prior to planting nursery stock and transplanted plugs.

(b) Hydraulic method. **Add the following:**

Add a tracer material consisting of either wood or grass cellulose fiber mulch to the slurry. Apply the tracer at a rate of 400 pounds per acre to provide visible evidence of uniform application.

625.08 Mulching. (a) Dry Method. **Add the following:**

Apply mulch uniformly at a rate of two tons per acre. Application of mulch shall be by mechanical methods. Mulch shall be crimped in a crimper or other approved equivalent.

Section 626. - PLANTS, TREES, SHRUBS, VINES, AND GROUNDCOVERS

Description

626.01 **Add the following:**

This work also consists of transplanting willow cuttings and clumps, and other plants from wetland take areas to wetland mitigation areas.

Construction Requirements

Add the following subsection:

626.04A Wetland Cuttings and Herbaceous Transplants.

In areas where upland shrubs are to be collected for transplanting, the collection of said shrubs shall precede vegetation and soil stripping. If project timing allows, shrubs should be harvested during dormancy (i.e., between the months of November and April) to minimize shock. A tree spade or excavator should be used to collect a root ball that is approximately the diameter of the crown of the shrub. All shrubs to be transplanted should be balled with burlap or placed in plant pots and stockpiled for later replanting.

(a) Willow cuttings. **All willow cuttings shall be collected form approved cutting sources. Willow cuttings used in the brush fences will be collected as close as possible to the construction site. Parent plants shall be typical representatives of their species. They shall be sound, healthy, vigorous, and free from plant disease, infection or decay. If the construction sequence allows for it, collected cuttings shall be in a** dormant **state and cuttings will be propagated over winter in order to develop roots before planting. No more than 10 cuttings shall be taken from one willow clump. Cuttings shall be 0.5" (13 mm) to 1" (25 mm) in diameter and 24" (0.6 m) to 36" (0.9 m) in length.**

(b) Transplanted herbaceous vegetation. **All vegetation to be transplanted shall be removed prior to any activity in the impact areas. The vegetation shall be completely** dormant **when it is removed and transplanted. To insure dormancy, transplanting should occur in the fall after the plants have dropped their seed.**

All transplanted material shall be removed by hand, utilizing a sharpshooter shovel (or other similar sharp-bladed implement). The herbaceous vegetation mat shall be cut with the shovel into circular "plugs", by holding the shovel in a vertical position and inserting it to a minimum depth of 16 inches (400 mm) for maximum penetration and avoidance of the underground rhizome/root mass. Each plug shall be a minimum of 9 inches (225 mm) in diameter. The entire subsurface rhizome/root mass shall be removed with the above ground portion of the plant, taking care not to damage the integrity of the overall plant. Immediately upon removal, the plant plugs shall be placed in 5 gallon (19 liter) plant pots and stored for later replanting.

626.05 Protection and Temporary Storage. **Add the following:**

© All stockpiled plants shall be watered and kept shaded or covered until planted.

(d) **Work shall be coordinated to prevent delays in planting that may expose the roots of the stockpiled plant material to the air, sun, or freezing conditions.**

(e) **All willow cuttings must be stored in water with the lower portion submerged for a period of at least 24 hours, not to exceed a period of 7 days.**

626.06 Excavation for Plant Pits and Beds. (a) Width of excavation. **Add the following:**

(3) Willow live stakes. **Prepare a pilot hole for live stakes by hammering a #5 rebar or drilling with a 3" (75 mm) diameter auger.**

(4) Willow clumps. **Excavate a planting pit that is as wide as the root mass plus 1 foot (300 mm).**

(5) Willow fence. **Excavate a trench 4" (100 mm) - 6" (150 mm) wide, and 8' (2.4 m) - 10' (3.0 m) long for placement of willow cuttings.**

(6) Herbaceous wetland plants. **Pits shall be excavated to a minimum width such that plants can be easily placed into pits. Widths shall not be greater than 1.5 times the planting plug width.**

(b) Depth of excavation. **Add the following:**

(5) Willow live stakes. **Pilot hole should be a minimum of 18" (0.45 m) deep, and must reach the local groundwater table.**

(6) Willow clumps. **Excavate planting pit to a depth that is at least 6" (150 mm) greater than the depth of the clump's root mass.**

(7) Willow fence. **Excavate a trench to a depth of 18" (0.45 m) - 24" (0.6 m); bottom 6" (150 mm) of trench must be in the water table.**

(8) Herbaceous wetland plants. **Pits shall be**

excavated to a minimum depth such that plants can be easily placed into the pits. Pit depths shall not be more than 6" (150 mm) greater than the depth of the plant's root mass.

626.07 Setting Plants. **Add the following:**

(d) Willow live stakes. **Place live stakes into excavated holes and backfill. Tamp stakes lightly to insure secure placement in the hole. Stakes should not protrude more than 18" (0.45 m) above the surrounding ground level.**

(e) Willow clumps. **Place clump into planting pit and carefully backfill with excavated soil. Tamp soil lightly around clump. Create a 2" (50 mm) high lip immediately downslope of the clump to capture and hold and surface runoff. Plant clumps at 4' (1.2 m) on center, in a triangular pattern as shown on the drawings.**

(f) Willow fence. **Excavate trench to a depth of 18" (0.45 m) - 24" (0.6 m). Insure that trench depth reaches the groundwater table. Backfill trench with excavated soil.**

(g) Herbaceous wetland plants. **Plant material locations shall be laid out in the field and staked by the Contractor prior to planting. Unless otherwise specified, all herbaceous material shall be laid out in groupings (i.e., 20 to 30 individuals) of the same species to more closely replicate natural conditions.**

Plants shall be placed into pits such that a minimum of 6" (150 mm) of top growth extends above the surrounding ground surface. Care must be taken not to damage the above and below ground portions of the plant. Plants shall be placed at 3' (0.9 m) on center, in a triangular spacing pattern as shown.

626.08 Fertilizing. **Add the following:**

In all wetland mitigation areas apply Osmocote 17-7-12 to all plant pits prior to planting material. Place ½ fluid ounce (15 grams) of fertilizer into willow live stake holes and herbaceous wetland plant pits prior to planting. Place 1 fluid ounce (30 grams) of fertilizer into each willow fence trench prior to planting. Place 2 fluid ounces (60 grams) of fertilizer into willow clump pits prior to planting.

626.09 Watering. **Add the following:**

Provide initial watering at the time of planting at a rate of 15 gallons (57 liters) per square yard of plant pit area. All plants shall be watered daily thereafter throughout the first growing season until the work is accepted by the CO. Each watering, after the first, shall provide 5 gallons (19 liters) of water per square yard in the plant pit basin.

626.12 Pruning. **Add the following:**

Prune approximately 20% - 30% of the top growth to minimize shock.

Measurement

626.16 **Add the following:**

Transplanted shrubs and plants will be measured by the each.

Payment

626.17 **Add the following:**

Pay Item	Pay Unit
62602A Remove and replant shrubs and plants	**Each**

Section 633. -- PERMANENT TRAFFIC CONTROL

Description

633.01 **Add the following:**

This work also consists of removing and resetting existing signs.

Construction Requirements

633.03 General. **Add the following:**

Remove, store, reinstall, and adjust the designated signs in a manner that will avoid loss or damage. Replace with like material any sign, post, or related hardware damaged, lost, or destroyed during the salvage operation.

633.07 Acceptance. **Add the following:**

Removal and resetting signs will be accepted under Subsection 106.02.

Measurement

633.08 **Add the following:**

Removal and resetting signs will be measured by the each.

Payment

633.09 **Add the following:**

Pay Item	Pay Unit
63311A Remove and reset sign	**Each**

Section 634. -- PERMANENT PAVEMENT MARKINGS

Construction Requirements

634.04 Conventional Traffic Paint (Type A). **Add the following at the end of the first paragraph:**

On new asphalt pavements or new asphalt surface treatments, apply two coats. Apply the first coat at 360 ft^2/gal (8.8.m^2/L) and the second coat at 150 ft^2/gal (3.7 m^2/L).

634.05 Waterborne Traffic Paint (Type B and C). **Add the following at the end of the first paragraph:**

On new asphalt pavements or new asphalt surface treatments, apply two coats. Apply each coat at 215 ft^2/gal (5.2 m^2/L).

Section 635. -- TEMPORARY TRAFFIC CONTROL

Construction Requirements

635.03 General. **Add the following:**

(I) Furnish traffic control devices which meet the acceptability standards as described in "Quality Standards For Work Zone Traffic Control Devices," published by the American Traffic Safety Services Association (ATSSA). The following criteria amend the ATSSA guidelines:

(1)
Maintain all devices in an acceptable condition.

(2)
Remove and replace marginal devices within 48 hours.

(3)
Remove and replace unacceptable devices immediately.

The referenced publication is available for review at the Construction Division office of CFLHD, 555 Zang St., Denver, CO, and may be ordered through:

American Traffic Safety Services Association
ATSSA Building
5440 Jefferson Davis Highway
Fredericksburg, VA 22406
(703) 898-5400

635.13 Temporary Pavement Markings. **Delete the text and insert the following:**

Perform the work described under MUTCD Part VI. Temporary pavement markings may be preformed retroreflective tape, traffic paint or temporary raised pavement markers.

Do not use raised pavement markers for seasonal suspensions.

Apply temporary traffic paint at a 15 mils (0.38 mm) minimum wet film thickness or at a rate of 107 square feet per gallon (2.6 m^2/L). Immediately apply type 1 glass beads on the paint at minimum rate of 6 pounds per gallon (0.07 kg/L) of paint. Do not apply temporary traffic paint to the final surface,

Install temporary raised pavement markers and preformed retroreflective tape in accordance with the manufacturer's instructions. When temporary raised pavement markers are used with chip seals, slurry seals, or tack coats, protect the markers with an approved cover and remove the cover after the asphalt material is sprayed.

Install marking patterns as follows:

Two-lane, two-way road: 14 days or less. A 4-foot (1.2 m) stripe followed by a 36-foot (11.0 m)

gap or three raised pavement markers 3.5 feet (1.1 m) apart followed by a 33-foot (10.1 m) gap.

Two-lane, two-way road with radius of curvature less than 500 feet (150 m): 14 days or less. A 2-foot (0.6 m) stripe followed by an 18-foot (5.5 m) gap or two raised pavement markers spaced 2 feet (0.6 m) apart followed by an 18-foot (5.5 m) gap.

Provide permanent pavement markings within 14 days. If permanent pavement delineation is not placed within 14 days, provide, at Contractor expense, additional temporary delineation equivalent to the permanent pattern specified.

Install R4-1 "DO NOT PASS" signs at the beginning of "no passing" zones and at ½-mile (0.8 km) intervals within "no passing" zones.

Install R4-2 "PASS WITH CARE" signs at the end of "no passing" zones.

Place temporary pavement markings on each lift of pavement before opening to traffic.

Remove all loose preformed retroreflective tape and remove temporary raised pavement markers before placing additional pavement layers. Remove all temporary markings from the final surface course before placing permanent markings.

Remove all conflicting pavement markings by sandblasting or other methods that do not damage the surface or texture of the pavement. Make the removal pattern uneven so it does not perpetuate the outline of the removed markings.

Repair all damage to the surface by acceptable methods. Lightly coat sandblasted areas on asphalt surfaces with an emulsified asphalt.

635.17 Delete the text of the fifth paragraph and substitute the following:

Construction signs will be measured by the square foot of front face sign panel and will be measured only one time even if relocated or replaced. "DO NOT PASS" and "PASS WITH CARE" signs required for temporary traffic control are included in the measurement for temporary pavement markings. Do not measure these signs as construction signs.

Delete the text of the twelfth paragraph and substitute the following:

Temporary pavement markings will be measured by the mile (km) along the centerline of the roadway and will include all markings and "DO NOT PASS" and "PASS WITH CARE" signs. Gaps will not be deducted. Only one application of temporary pavement markings per lift will be measured.

Section 638.--LEAN CONCRETE BACKFILL

Description

638.01 **This work consists of constructing lean concrete backfill.**

Material

638.02 **Material shall conform to the following Subsections:**

Aggregate	**703.05**	**For quality and reasonably graded from coarse to fine with a maximum size of 1 inch, and 10 percent maximum passing the U.S. No. 200 sieve.**
Water	**725.01**	

638.03 Concrete Composition. **Proportion aggregate, cement and water by weight or volume.**

Concrete shall contain not less that 188 pounds (2 sacks) of cement per cubic yard.

Concrete shall be subject to acceptance or rejection by visual inspection at the job site.

Submit the following for approval:

(a)
Type and sources of aggregates.

(b)
Type and sources of cement.

Scale weight or quantities of each aggregate proposed per cubic yard of concrete

(d)
Quantity of water proposed per cubic yard of concrete.

(e)
Quantity of cement proposed per cubic yard of concrete.

(f)
Slump.

(g)
Chemical additives

Construction Requirements

638.04 Mixing and Placing Concrete. **Mix lean concrete backfill thoroughly by pugmill, rotary drum, or other approved mixer. Place lean concrete backfill in a uniform manner that will prevent voids in or segregation of the backfill and will not float or shift the culvert.**

Furnish a certification with each truck load of concrete that the material and mix proportions used are in conformance with the approved mixture.

Comply with the applicable requirements of subsection 552.10 when placing lean concrete at or below an atmospheric temperature of 35° F.

Place lean concrete backfill only for that portion of the structure backfill up to within 12 inches of the finished subgrade and at least 12 inches over the top of the culvert.

Do not use lean concrete as backfill for aluminum and aluminum-coated pipe culverts.

638.05 Excavation and Backfill. **Excavate and backfill according to Section 209.**

Section 702. -- BITUMINOUS MATERIAL

702.03 Emulsified Asphalt. (a) **Delete the text and substitute the following:**

CRS-1h and CRS-2h emulsions shall meet the requirements of CRS-1 and CRS-2, respectively, except the penetration of the residue shall be 40 to 90.

Add the following:

When specified for tack coat, an equivalent anionic grade emulsion may be substituted for a cationic grade and vice versa.

702.05 Material for Dampproofing and Waterproofing Concrete and Masonry Surfaces. **Replace the following AASHTO specifications with the corresponding ASTM specifications for the subsections listed below:**

Subsection	AASHTO	ASTM
702.05(a)	M 116	D 41
702.05©	M 115	D 449
702.05(d)	M 117	D 173
702.05(f)	M 46	D 517

(e) Mortar. **Amend as follows:**

Mortar material shall conform to Subsection 712.05 except uniformly mix the mortar to a spreading consistency using volumetric proportions of 1 part portland cement to 3 parts fine aggregate.

Add the following subsection:

702.09 Cold Asphalt Mix. **Mix crushed stone or gravel, and asphalt in an approved plant. Conform to aggregate gradation and quality and asphalt grade and quality specifications normally used in the construction of highways by Federal or state agencies.**

Do not use an aggregate asphalt mix that strips. For patching mixes, use an asphalt grade and mix that remains pliable and workable at 15°F.

Section 703. -- AGGREGATE

703.02 Coarse Aggregate for Portland Cement Concrete. **Delete the second sentence and substitute the following:**

Use aggregates with a percentage of wear of not more than 40% when tested according to AASHTO T 96.

Add the following:

The maximum abrasion requirement of Table 1, AASHTO M 80, Class A aggregates shall be 40.

Do not use aggregates containing serpentine or talc minerals or carbonate aggregates containing less than 25% by weight insoluble residue, as determined by ASTM D 3042 in sizes No. 200 to No. 10, in concrete used in bridge decks or for paving.

Add the following:

For minor concrete (Section 601), provide a coarse aggregate grading which conforms to AASHTO M 43 with 100% passing a 1 ½ inch sieve.

703.05 Subbase, Base and Surface Course Aggregate. (a) General. (3) **Delete the liquid limit requirement.**

(b) Subbase aggregate. (1) **Delete the text and substitute the following:**

(1) Liquid limit, AASHTO T 89 25 max.

© Base aggregate. (1 **Delete the text and substitute the following:**

(1) Liquid Limit, AASHTO T 89 25 max.

(d) Surface course aggregate. (1) **Delete the text and substitute the following:**

(1) Liquid Limit, AASHTO T 89 35 max.

Add the following:

The requirement for the material to have a minimum plasticity index of 4 will be waived if the minus No. 10 sieve fraction of the material has a natural cementation value greater than 170 psi determined according to FLH T 510 of the Materials Manual.

703.07 Hot Asphalt Concrete Pavement Aggregate. (a) Coarse aggregate. **Add the following to the first paragraph:**

(5) Liquid limit, AASHTO T 89 25 max.
(6) Adherent coating, FLH T 512 1% max.

Delete the last paragraph and substitute the following:

Do not use aggregates known to polish or those that have been rejected by a State or Federal agency for their polishing characteristics. For a Class A mixture used as a surface course, do not use aggregates containing a substantial portion of serpentine or talc minerals or carbonate aggregates containing less than 25 percent by weight insoluble residue as determined by ASTM D 3042, in sizes No. 200 to No. 10.

(b) Fine aggregate. **Add the following:**

In order to meet the mix design requirements, the fine aggregate (minus No. 4 sieve sizes) may require a blend of manufactured fines or stone screenings in addition to natural sand.

(2) **Delete the text and substitute the following:**

(2) Liquid Limit, AASHTO T 89		**25 max.**

Table 703-6. Add the following grading designation:

Sieve Size	Percent by Weight Passing Designated Sieve (AASHTO T 27 and AASHTO T 11)
	Grading Designation
	G
1 inch (25 mm)	100
3/4 inch (19 mm)	97-100
½ inc (12.5 mm)	* (5)
3/8 inch (9.5 mm)	* (6)
No. 4 (4.75 mm)	* (7)
No. 8 (2.36 mm)	* (5)
No. 30 (600 µm	* (4)
No. 50 (300 µm	* (3)
No. 200 (75 µm)	4-8 (2)

*** Designate target value**

Section 704. -- SOIL

704.02 Bedding. © Class C bedding. **Add the following:**

The material shall be nonplastic.

704.06 Unclassified Borrow. **Add the following:**

Remove all rock fragments and boulders greater than 6 inches in the longest direction.

Section 706. -- CONCRETE AND PLASTIC PIPE

706.08 Plastic Pipe. (b) Corrugated polyethylene pipe. **Delete the text and substitute the following:**

Furnish 12- to 36-inch (305 to 915 mm) diameter pipe conforming to AASHTO M 294 and minimum cell class, ASTM D 3350, 315410C.

(d) Corrugated polyethylene drainage tubing. **Delete the text and substitute the following:**

Furnish 3- to 10-inch (76 to 254 mm) diameter tubing conforming to AASHTO M 252.

Section 713. - ROADSIDE IMPROVEMENT MATERIAL

713.05 Mulch. (a) Straw. **Add the following:**

Mulch for seeded mitigation areas shall be straw. Individual strands of mulch shall be a minimum of 6-inches in length for crimping purposes. The mulch shall be reasonably bright in color and shall not be musty, moldy, caked, decayed, or very dusty. The mulch shall not contain any substance or factor which might inhibit germination or growth of grass seed.

713.07 Blankets, Mats, and Netting. (a) Erosion control mats. **Add the following:**

Use Bonterra CF7, coconut coir erosion control fabric, or approved equal in all wetland mitigation area applications.

Section 714. -- GEOTEXTILE AND GEOCOMPOSITE DRAIN MATERIAL

714.01 Geotextiles. (a) Type I. **Delete** (1) **and** (2) **and substitute the following:**

(1)
Geotextile permeability
a. Permeable material, ASTM D 4491 $\geq$ 0.80 mm/s
b. Impermeable material, ASTM D 4491 1 x 10^{-7} cm/s maximum

(2) **Apparent opening size, ASTM D 4751 $\leq$ Sieve No. 50 (300 µm)**

(h) Type VIII. **Delete** (2) **and substitute the following:**

(2) **Apparent opening size, ASTM D 4751 ≤ Sieve No. 50 (300 µm)**

714.02 Geocomposite Drains. (a) Geocomposite sheet drains. **Add the following:**

Furnish a sheet drain with a continuous collector pipe along its length.

Section 718. -- TRAFFIC SIGNING AND MARKING MATERIAL

718.13 Conventional Traffic Paint. **Delete the text and substitute the following:**

An alkyd resin ready-mixed paint for use on asphalt and portland cement concrete pavements conforming to AASHTO M 248, type S.

Section 725. -- MISCELLANEOUS MATERIAL

725.04 (a) & (b). **Delete the text and substitute the following:**

Fly ash and pozzolans for use in major or minor concrete shall conform to the following:

(a)	**Fly ash AASHTO M 295**
(b)	**Ground granulated blast furnace AASHTO M 302, Grade 100 or 120 slag**

Add the following:

(d)	**Silica fume (micro-silica) AASHTO M 307**

Add the following Subsection:

725.27 Magnesium Chloride. **Furnish a magnesium chloride brine solution containing 28 to 35 percent $MgCl_2$ by weight and 65 to 72 percent water by weight. The brine shall have a specific gravity of between 1.290 and 1.330 as determined by a heavy liquid hydrometer.**